

EPIDEMIOLOGY SURVEILLANCE SYSTEM 2000 REPORT

**New Jersey Department of Health and Senior Services
Division of Epidemiology, Environmental and Occupational Health**

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Preface

Multiple antibiotic-resistant bacteria have been recognized as a serious threat to the nation's public health since the early 1990s. The tremendous therapeutic advantage afforded by antibiotics is now jeopardized by the increasing resistance of microbes. In an effort to develop a resource to measure antibiotic resistance in New Jersey and to provide a basis for the development of cost-effective measures to reduce further development of antibiotic resistance, the New Jersey Department of Health and Senior Services (NJDHSS) launched an initiative in 1991 to collect information about these organisms. Under this initiative, a statewide hospital laboratory-based **Epidemiology Surveillance System** was established which monitors: 1) methicillin-resistant *Staphylococcus aureus* (MRSA); 2) Gram-positive cocci resistant to vancomycin; 3) penicillin-resistant streptococci / enterococci; 4) Gram-negative rods resistant to imipenem; and 5) Gram-negative rods resistant to amikacin, gentamicin, and tobramycin.

Methodology

A New Jersey **Epidemiology Surveillance Record** form is submitted monthly by each acute-care hospital in New Jersey (Attachment 1). These forms are checked for completeness upon receipt by staff in the NJDHSS Infectious and Zoonotic Diseases Program. Follow-up telephone calls are made as needed to ensure that all forms are submitted each month and that all isolates are sent to the NJDHSS Public Health and Environmental Laboratories.

Eighty-eight New Jersey acute-care hospitals participated in the surveillance program in 2000. The overall number of organisms, annual trend, geographic distribution and specific drug-resistant profile in each class of organism were computed. All rates by facility are normalized by each facility's reported number of occupied beds in 2000, while rates by county are normalized by each county's 2000 resident population. Individual hospital's data are considered to be confidential, and are not disclosed in this report. Data from counties containing only one hospital were aggregated with a neighboring county's data for county rate analysis. Therefore, no individual hospital's rate can be identified from this report.

Summary

The data collected by the New Jersey **Epidemiology Surveillance System** indicates that a total of 3,860 MRSA blood isolates was reported in 2000, representing a 17.6 percent increase from 1999. The incidence rate (45.9 blood isolates per 100,000 population) in 2000 nearly doubled the 1996 rate (24.8 blood isolates per 100,000 population). Similar trending was reported in the National Nosocomial Infections Surveillance (NNIS) system¹. The NNIS 2000 survey data showed that 55.3 percent of *S. aureus* isolates in ICU patients were MRSA, a 29

percent increase from its 1995-1999 level. Despite therapeutic advances in recent years, high mortality rates (20 to 40 percent)² and incidence of complications (11 to 53 percent)³ in *S. aureus* bacteremia have been reported. A substantial proportion of *S. aureus* bacteremia (82.2 percent) was documented as endogenous, originating from colonies in the nasal mucosa⁴. Furthermore, colonization with MRSA leads to a higher autoinfection rate than with methicillin-susceptible isolates⁵. It is suggested that the eradication of colonization should be the chief strategy in order to reduce the incidence of nosocomial *S. aureus* bacteremia and other serious infections⁵.

The epidemiology of MRSA and the factors driving resistance bear strong similarities and parallels to those occurring with penicillin-resistant strains of *S. aureus* in the 1940s and 1950s. Soon after nosocomial penicillin-resistant *S. aureus* rates exceeded 40-50 percent, an upswing of community rates followed. The two rates reached virtually the same level by the 1970s⁶. Recent MRSA studies in the Midwest⁷, Connecticut⁸ and California⁹ indeed suggest that MRSA has emerged as a community-acquired pathogen. Unlike nosocomial MRSA isolates, community-acquired isolates from patients without known MRSA risk factors are generally multidrug susceptible (except to β -lactams) and have distinctive molecular characteristics¹⁰.

Due to the limited scope of this surveillance system's data collection, the extensiveness of MRSA circulation beyond nosocomial settings in New Jersey is largely unknown. To gain a preliminary insight, a variance analysis of factors affecting MRSA bacteremia rates was attempted. Factors analyzed include a hospital's reported number of occupied beds, vancomycin-resistant enterococci (VRE) blood isolates rates, population density, per capita income, and percentage of resident nonwhite and Hispanic population in the county where the hospital located. Based on the 2000 data, the rate of MRSA bacteremia varied significantly by VRE rate ($P=0.025$) and the region ($P=0.008$), but not by hospital size ($P=0.624$) or rural-urban location ($P=0.732$). The MRSA bacteremia rate in facilities with higher VRE rate (greater than 4 blood isolates / 100 occupied beds) is significantly higher than in facilities with low VRE rate (less than 1 blood isolates / 100 occupied beds). The rate in facilities in Central New Jersey (Middlesex, Mercer, Hunterdon and Somerset Counties) was significantly higher than that in other regions ($P<0.05$).

In 2000, the number of VRE blood stream infections decreased for the first time in New Jersey since 1991. A total of 566 isolates was reported in 2000, representing a 0.7 percent decrease from 1999. Nationally, the 2000 NNIS data indicated that 26.3 percent enterococci isolated from ICU patients were VRE, a 31 percent increase from 1995-1999¹. The decline in New Jersey numbers may be attributable to the increasing awareness of VRE by the hospital infection control staffs, due at least partly to the publication of our 1995-1997 and 1998 Reports in 2000. In addition, duplicated samples from the same patient reported each month could have been detected and hence eliminated due to the newly inclusion of the patient's medical record number in the year 2000 data collection forms. In 2000, *Enterococcus faecium* isolates accounted for 70 percent of the VRE isolates, while *Enterococcus faecalis* accounted for another 20.1 percent. VRE bacteremia had an attributable mortality rate approaching 40 percent¹¹, owing to treatment limitations. A regimen of drug therapy for clinically important VRE infections was summarized by Dr. Murray in a recent publication¹².

In the United States, VRE are predominantly acquired within hospitals. However, several recent studies had shown that patients in long-term care facilities¹³ as well as from the

community¹⁴ can also be colonized with VRE and serve as reservoirs. The prevalence of VRE among nonhospitalized patients varied by geographic region¹⁵. Based on the 2000 data, the rate of VRE bacteremia was associated with hospital size (VRE rates in hospitals with 300 or more occupied beds were significantly higher than in other hospitals ($P=0.005$)), MRSA rates (VRE rates in facilities with MRSA rate greater than 24 blood isolates / 100 occupied beds were significantly higher than in facilities with lower MRSA rates ($P=0.017$)), and region (VRE rates in Central New Jersey facilities were significantly higher than in other region's facilities ($P=0.031$)). A regression analysis further revealed that the high proportion of a community's nonwhite population also affected high VRE rate ($P=0.004$). Further studies are needed in order to address the relationship between such a community characteristic and the high VRE rates.

In summary, the high rate of VRE bacteremia is significantly associated with high MRSA blood stream infections in New Jersey hospitals, and *vice versa*. Among the five regions (Northern, Central, Coastal, Southern, and Northwestern) in New Jersey, the Central region had the highest rates for both MRSA and VRE bacteremia infections. Factors affecting inter-facility disparity of MRSA and VRE rates may be complicated, based at least partly, on several determinants: 1) diagnostic practice and laboratory recognition in hospital laboratories; 2) antibiotic prescribing and control practices; 3) infection-control practices in the hospitals; 4) strain variations and their ability to transfer resistant genes; and 5) the extent of colonization and spreading in the community. The effective practices in reducing the rates may vary among hospitals because the major modes of expansion for MRSA and VRE infections in a facility could be different from another. For the high rate hospitals, examining and evaluating these determinants will be the first step to implement cost effective control measures.

Sterile-site infections with penicillin-resistant *Streptococcus pneumoniae* (PRSP) in New Jersey acute-care hospitals increased 574 percent from 1992 to 2000, parallel to the national trend^{16,17}. A total of 110 isolates was reported in 2000, representing a 12.3 percent increase from the 1999 figure. The infection pattern appears to be seasonal with a peak in the winter and a trough in the summer. An analysis of variance using aggregated data from 1998 to 2000* indicates that facilities located in rural areas had higher rates of PRSP ($P=0.0006$) than in other areas. A low percentage of nonwhite population also led to higher PRSP rates according to the regression analysis. This is consistent with findings from studies performed in other regions of the nation which suggested that a greater antibiotic prescription rate in rural primary care facilities¹⁸ as well as the better access to medical cares¹⁹ may be associated with a high PRSP rate.

As mentioned in several studies^{20,21}, inappropriate antibiotic usage in treating respiratory viral infections and unnecessary prescribing of broad spectrum agents are thought to be major factors contributing to the increasing PRSP rates. The CDC's Drug-Resistant *S. pneumoniae* Therapeutic Working Group has recently issued treatment recommendations as well as new guidelines regarding penicillin minimum inhibitory concentration (MIC) for the definition of PRSP²². *S. pneumoniae* is probably the most common cause of bacterial pneumonia in otherwise healthy children²³. In a recent article that reviews the treatment of outpatients and

* Any single-year's data contain too few cases to yield reliable results for statistical analysis.

inpatients among children with community-acquired pneumonia, Dr. McIntosh recommended that because of the complexity of its etiology and the rate of development of antimicrobial resistance, consensus guidelines for management and treatment of such infections should be developed and refined over time, based on regionally collected data²³. Another issue relevant to *S. pneumoniae* infections is the efficacy of vaccine. There is already some evidence in vaccinated persons that pneumococcal serotypes not represent in the vaccine are replacing the serotypes covered by the vaccine and are causing otitis media²⁴. However, CDC had concluded that only a limited number of serotypes is responsible for most infections with PRSP in the United States. The pneumococcal vaccines should offer protection against most drug-resistant strains of *S. pneumoniae*¹⁶.

Gram-negative bacilli are also important pathogens in bloodstream infection. Among them, *Klebsiella* spp. ranked fifth in frequency, *Pseudomonas aeruginosa* ranked seventh, *Proteus mirabilis* ranked tenth, *Acinetobacter* spp. ranked twelfth, *Serratia* spp. ranked thirteenth, *Citrobacter* spp. ranked fourteenth, *Stenotrophomonas maltophilia* ranked fifteenth in a national study²⁵. These infections are primarily nosocomial, with *P. aeruginosa*, *Enterobacter* spp., *Klebsiella pneumoniae*, and *Escherichia coli* accounting for 32 percent of all hospital-acquired infections²⁶. The crude mortality rates associated with *K. pneumoniae*, and *E. coli* bloodstream infections are 24 and 27 percent, respectively²⁷, while the mortality rate for *S. maltophilia* varied greatly, ranging from 0 to 38 percent²⁸. Nationally, the prevalence of extended-spectrum β -lactamases (ESBL) producing organisms in *Enterobacteriaceae* and *P. aeruginosa*, has increased to an alarming rate in recent years, resulting in difficult-to-treat infections²⁷. In fact, the 2000 NNIS data showed that 34.9, 26.4, 11.2, and 3.4 percent of the *Enterobacter* spp., *P. aeruginosa*, *K. pneumoniae*, and *E. coli* isolates, respectively, were resistant to third generation cephalosporins when obtained from ICU patients¹. Isolates of *P. aeruginosa* further harbor a 27.3 and 17.7 percent resistance to quinolone and imipenem, respectively¹.

In New Jersey, a total of 112 amikacin-resistant Gram-negative bacilli was reported in 2000 -- a 4.3 percent decrease from 1999. The most frequently reported organisms were *K. pneumoniae* (26.8 percent), *S. maltophilia* (17.9 percent), and *Acinetobacter calcoaceticus* - *Acinetobacter baumannii* complex (19.6 percent). The number of *A. calcoaceticus*-*A. baumannii* complex isolates increased by 15.8 percent in 2000, along with a substantial increase in multiple-drug resistance. A total of 169 imipenem-resistant Gram-negative bacilli was reported in 2000 -- a 14.2 percent increase from 1999. Within this group of organisms, *P. aeruginosa* accounts for 37.9 percent, *A. calcoaceticus*-*A. baumannii* complex 24.3 percent, and *S. maltophilia* 22.5 percent. The number of these organisms increased 23.1, 17.1, and 40.7 percent, respectively, from 1999 to 2000.

A steady increase of bacteremia²⁹ and outbreak of nosocomial pneumonia³⁰ due to *A. baumannii* infections had also been observed in other areas of the United States in recent years. The infection is significant in ventilator-dependent patients, with mortality rates ranging from 30 to 75 percent²⁹. The infection is also associated with prior use of ceftazidime, usually used for treating resistant *Pseudomonas* spp³⁰. In 2000, most of the imipenem-resistant *A. calcoaceticus*-*A. baumannii* complex cases were concentrated in six facilities in New Jersey, with two facilities also reporting high number of imipenem-resistant *P. aeruginosa*. Improving compliance with

hand-washing³⁰, as well as evaluating antibiotic formulations and treatment outcomes²⁸, are recommended for reducing these rates.

MRSA Isolates in New Jersey Hospitals

S. aureus remains the most prevalent cause of bloodstream, skin and soft-tissue infection and pneumonia in the United States³¹. Nationwide, the percentage of methicillin resistance in this organism has increased from 20-25 percent in 1990 to 25- 45 percent in 1997³² and 55.3 percent in 2000¹. The bar chart in **Exhibit 1** presents the trend of the annual number of MRSA isolates reported during the 1991 to 2000 period in New Jersey. Of the 23,699 MRSA isolates reported in 2000, 31 percent (7,413 isolates) were from wound cultures, 28 percent (6,675 isolates) from sputum cultures, 16 percent (3,860 isolates) from blood cultures, 11 percent (2,626 isolates) from urine cultures and 13 percent (3,125 isolates) from cultures of other body sites. The total number of inpatient isolates was virtually unchanged between 1994 and 1996. However, an increase was observed after 1996. By 2000, the number of MRSA blood isolates almost doubled the 1996 figure. **Exhibit 2** shows the MRSA blood isolates per 100,000 population per year from 1991 to 2000. The MRSA blood isolates rate increased sharply in the years of 1997 (27.6 per 100,000 population), 1998 (32.2 per 100,000 population), 1999 (40.3 per 100,000 population) and 2000 (45.9 per 100,000 population). **Exhibit 3** displays the number of reported MRSA total isolates per 100 occupied beds per month for each facility in 2000. Facilities were ranked by their 2000 rates in descending order. For comparison, the 1999 rates were also included. An obviously increasing trend is observed in the State total, when the average rate in 2000 (12.3) is compared with rates in 1999 (11.4), 1998 (9.5), 1997 (8.1), 1996 (7.1) and 1995 (6.8). Distribution of these isolates and rates by county in descending order is highlighted in **Exhibit 4**. Mercer and Essex Counties had the highest rates of 485.8 and 378 per 100,000 populations, respectively.

Antibiotic-Resistant Bacteria - Bloodstream Infections in New Jersey Hospitals

A total of 1,066 antibiotic-resistant blood isolates was reported in 2000 -- a 1.2 percent increase from 1999, and a hefty 523 percent increase since 1991 (**Exhibit 5**). The frequency of antibiotic-resistant blood isolates in each facility, ranked in descending order by number of isolates per 100 occupied beds, is illustrated in **Exhibit 6**. The State's average rate reached 7.6 for every 100 occupied beds in 2000, up from 7.5 in 1999; 6.2 in 1998; 4.9 in 1997; 3.9 in 1996 and 3.5 in 1995. Distribution of these isolates and the rates by county in descending order is highlighted in **Exhibit 7**. A decrease in the rate (isolates per 100,000 population) was observed in the State average, by comparing the 2000 rate (12.7) with rate in 1999 (12.9).

Vancomycin-Resistant Gram-Positive Cocci in New Jersey Hospitals

Enterococci have been documented to be the fourth most prevalent isolates from blood cultures in the United States and Canada²⁵. The occurrence of vancomycin-resistant enterococci (VRE) in the nation has increased from less than one percent among all enterococci isolates in 1990 to 6 percent in 1992, 8 percent in 1994, 16 to 17 percent in 1996, 18 percent in 1997³² and

26.3 percent in 2000¹. The occurrence of new patterns of resistance in clinical isolates, such as vancomycin intermediate-resistant *S. aureus* (VISA)³³ and *Staphylococcus epidermidis*³⁴, and vancomycin-tolerant *S. pneumoniae*³⁵ has been documented recently. Because of the increasing concern of VISA strain emergence³⁶ and the apparent heterogeneity of VISA strains³⁷, all *S. aureus* isolates with vancomycin MICs of ≥ 4 $\mu\text{g/ml}$ should be re-confirmed with CDC recommended methods³⁸. Methods that would not identify VISA isolates include disk diffusion with no additional method, Microscan^R Walkaway Rapid* panels (which provides less than 24 hours incubation), and Vitek systems with a vancomycin MIC of greater than or equal to 8 $\mu\text{g/ml}$ as the indicator for additional testing³⁸. Primary testing of *S. aureus* against vancomycin requires 24 hours of incubation time³⁸. An MIC susceptibility testing method should be used to confirm vancomycin test results³⁸.

Exhibit 8 summarizes the variety and number of Gram-positive cocci, collected in New Jersey from 1994 to 2000, that were vancomycin resistant. Vancomycin-resistant enterococci accounts for 99.1 percent of the 571 isolates collected in 2000. The majority of the VRE isolates was *E. faecium* (70 percent). *E. faecalis* accounted for another 20.1 percent. In addition, one streptococci and two staphylococci were reported to be vancomycin-resistant in 2000. Such isolates may be a result of the contamination of VRE in the culture, inaccurate speciation, or true emerging resistant patterns. To distinguish one from another and to re-confirm the culture, it is very important that staff in NJDHSS Infectious and Zoonotic Diseases Program is notified immediately upon isolation of these organisms. These isolates should be sent to the NJDHSS laboratory for further confirmation. The temporal trend of the number of VRE blood isolates from 1992 to 2000 is presented in **Exhibit 9**. The number of VRE isolates increased 480 percent during this period, from an average of 11 isolates per month in January 1992 to 52.9 isolates per month in December 2000. **Exhibit 10** depicts the frequency of VRE blood isolates in each facility, ranked in descending order by number of isolates per 100 occupied beds. The 1999 rates are also included for comparison. The average State rate per 100,000 population reached 6.7 in 2000, down from 7.0 in 1999 (**Exhibit 11**). Essex and Middlesex Counties had the highest rates of 19.2 and 14.8 isolates per 100,000 populations, respectively (**Exhibit 11**).

Exhibit 12 summarizes the drug resistance profile of VRE, collected from 1994 to 2000. *E. faecium* is the most frequently isolated organism. In 2000, a high level of resistance to penicillin (99.2 percent), ampicillin (99.2 percent), erythromycin (98.3 percent), ciprofloxacin (100 percent), levofloxacin (99 percent), trovafloxacin (96.7 percent) and high concentration streptomycin (77.6 percent) continued. An increasing trend of resistance to tetracycline (65.6 percent) was also observed. A complete susceptibility to linezolid and quinupristin-dalfopristin was observed in *E. faecium*, although the number that were tested was relatively small. In comparison to *E. faecium*, *E. faecalis* isolates displayed a very different drug resistance pattern to penicillin (18.5 percent), ampicillin (9.5 percent), high concentration gentamicin (75 percent), chloramphenicol (53.1 percent), rifampin (20 percent) and quinupristin-dalfopristin (100 percent).

Penicillin-Resistant Streptococci / Enterococci in New Jersey Hospitals

S. pneumoniae have been documented to be the sixth most prevalent organism isolated from blood cultures in the United States, while viridans streptococci ranks eleventh²⁵. The rate

of invasive *S. pneumoniae* infections is 24.1 cases per 100,000, with a case-fatality ratio of 9.3 percent in the United States³⁹. The national rate of *S. pneumoniae* nonsusceptible to penicillin has increased from 23.6 percent in 1994-1995 to 29.5 percent in 1997-1998 and 34.2 percent in 1999-2000, parallel to the increase in multiple antibiotic resistance rate of 9.1 percent in 1994-1995, 16 percent in 1997-1998 and 22.4 percent in 1999-2000⁴⁰. **Exhibit 13** lists the variety and the number of penicillin-resistant streptococci and enterococci sterile-site isolates reported between 1994 and 2000 from New Jersey hospitals. The most frequently reported organism is *E. faecium* (56.7 percent in 2000), followed by *S. pneumoniae* (25.6 percent in 2000). Although the number seems to fluctuate between 1992 and 2000, **Exhibit 14** shows an estimated 240 percent increase in the number of penicillin-resistant streptococci and enterococci sterile-site isolates, from 16.2 per month in January 1992 to 38.9 per month in December 2000. The rate and the distribution of these isolates by county are demonstrated in **Exhibit 15**. A decrease in the State total rate was observed between 1999 (5.4 per 100,000 population) and 2000 (5.1 per 100,000 population).

Exhibit 16 shows the increasing trend of PRSP sterile-site isolates between December 1991 and February 2001. A substantial increase of 574 percent in PRSP sterile-site isolates during this period is estimated. The number of PRSP sterile-site isolates fluctuated by season with a peak in the winter (December, January, and February) and a trough in the summer (June, July, and August). **Exhibit 17** displays the rate and the distribution of PRSP sterile-site isolates by county. Mercer County had the highest rate, with 2.3 isolates per 100,000 populations.

Exhibit 18 summarizes the drug-resistant profile of PRSP and penicillin-resistant viridans streptococci. Vancomycin is effective against PRSP. However, along with the increasing use of macrolides from 1993 to 1999, resistance to macrolides among invasive *S. pneumoniae* isolates also increased nationwide, from 10.6 percent in 1995 to 20.4 in 1999⁴¹. Similar to the national trend, PRSP blood isolates in New Jersey displayed high rates of resistance to erythromycin (58 percent); azithromycin (60 percent); and clarithromycin (55.6 percent) in 2000, although, the numbers tested were relatively small. The same pattern was observed in third generation cephalosporins: 30.8 percent (complete) and 53.9 percent (intermediate) resistant to cefotaxime; and 10.3 percent (complete) and 47.1 percent (intermediate) resistant to ceftriaxone. For comparison, the reported national rates of resistance among PRSP in 1999-2000 were: macrolides 76-78 percent, ceftriaxone 65.7 percent, clindamycin 25.8 percent, tetracycline 48 percent, and chloramphenicol 27.7 percent¹⁷. They remain fully susceptible to vancomycin, quinupristin-dalfopristin, gatifloxacin and moxifloxacin, but developed a low level resistance to rifampin (0.3 percent), ofloxacin (1.2 percent) and levofloxacin (0.3 percent)¹⁷.

Amikacin-Resistant Gram-Negative Bacilli in New Jersey Hospitals

Exhibit 19 displays the variety and the number of amikacin-resistant Gram-negative bacilli reported from 1994 to 2000 in New Jersey hospitals. The most frequently reported Gram-negative organism in 2000 was *K. pneumoniae* which accounted for 26.8 percent of the total collection. Isolates of *A. calcoaceticus*-*A. baumannii* complex reached significantly to 19.6 percent in 2000, up from 16.2 percent in 1999, 11.2 percent in 1998, 9.4 percent in 1997 and 4.9 percent in 1996. The number of isolates within the *Enterobacteriaceae* family accounted for

39.3 percent of the total collection in 2000. **Exhibits 20 and 21** illustrate the nine-year trend and the distribution of these isolates by county, respectively. A 211 percent increase, from 5 isolates per month in January 1992 to 10.4 isolates per month in December 2000 is demonstrated in **Exhibit 20**. Essex and Middlesex Counties had the highest rates (5.5 and 3.3 per 100,000 population, respectively). Together, they accounted for 61.6 percent of the isolates reported in the State (**Exhibit 21**).

Imipenem-Resistant Gram-Negative Bacilli in New Jersey Hospitals

Exhibit 22 depicts the number and variety of imipenem-resistant Gram-negative bacilli reported from 1994 to 2000. The total number of organisms in this collection had increased slightly during these years, as shown in **Exhibit 23**. *P. aeruginosa* (37.9 percent) was the most frequently reported isolate. *A. calcoaceticus* -*A. baumannii* complex accounted for 24.3 percent of the 2000 submission, a 289 percent increase from 8.4 percent in 1997. **Exhibit 24** displays the rate and the distribution of these organisms by county. Essex and Middlesex Counties had the highest rates (6.6 and 3.9 per 100,000 population, respectively) and accounted for 47.9 percent of the isolates reported in the State.

Drug Resistance Profile in Gram-Negative Bacilli in New Jersey Hospitals

Exhibit 25 displays the drug resistance profile in major *Enterobacteriaceae* blood isolates. A high percentage of resistance to penicillins and aminoglycosides, as well as the extended-spectrum β -lactamases (ESBL) antibiotics in *K. pneumoniae* was observed. Their resistance to ciprofloxacin (70.3 percent), ceftazidime (88.9 percent), and ceftriaxone (48.5 percent) has also tended to increase over time. Among the 2000 isolates, the overall resistance rate of *E. coli* was 44.4 percent to ceftazidime, 79.2 percent to ampicillin, 63.6 percent to piperacillin, 63.2 percent to tobramycin and 77.8 percent to trimethoprim/sulfamethoxazole. It is noteworthy that isolates collected in our system represent blood isolates resistant to either imipenem or amikacin. The overall multiple drug resistance in this group is much higher than random isolates. In comparison, the meropenem yearly susceptibility test information collection (MYSTIC) 1999 results showed that among all *Klebsiella* spp. collected from ten USA centers, the susceptibility were: 100 percent to meropenem, imipenem and cefepime; 97 and 96 percent to ceftriaxone and ceftazidime; 93 percent to piperacillin/tazobactam; 95 percent to ciprofloxacin and tobramycin; and 96 percent to gentamicin. In the United States, there were 5.9 and 5 percent of the *Klebsiella* spp. and *E. coli* isolates, respectively, that demonstrated a phenotype consistent with ESBL production⁴².

Exhibit 26 demonstrates the drug resistance profile of major Gram-negative bacilli that do not belong to *Enterobacteriaceae*. Imipenem resistance was high in *S. maltophilia* (100 percent), *P. aeruginosa* (86.5 percent), and *A. calcoaceticus* -*A. Baumannii* complex (73.2 percent), according to the 2000 data. High frequency of aminoglycosides resistance was also observed in *A. calcoaceticus*-*A. baumannii* complex (ranging from 98.4 percent for gentamicin to 40 percent for amikacin). Multiple drug resistance was very common in *S. maltophilia*, *A. calcoaceticus*-*A. baumannii* complex and *P. aeruginosa*. For reference, the MYSTIC 1999 data showed that the susceptibility of *P. aeruginosa* from ten USA centers were: 78 percent to

meropenem and imipenem; 79 percent to cefepime; 5 and 83 percent to ceftriaxone and ceftazidime; 89 percent to piperacillin/tazobactam; 83 percent to ciprofloxacin; 93 percent to tobramycin; and 87 percent to gentamicin⁴².

References

1. National Nosocomial Infections Surveillance (NNIS) System Report, data summary from January 1992-June 2001, issued August 2001. (2001) *Am J Infect Control* 29:404-421.
2. Mylotte JM, McDermott C, and Spooner JA. (1987) Prospective study of 114 consecutive episodes of *Staphylococcus aureus* bacteremia. *Rev Infect Dis* 9:891-907.
3. Lowy FD. (1998) *Staphylococcus aureus* infections. *N Engl J Med* 339:520-532.
4. von Eiff C, Becker K, Machka K, et al. (2001) Nasal carriage as a source of *Staphylococcus aureus* bacteremia. *N Engl J Med* 344:11-16.
5. Archer GL, and Climo MW (2001) *Staphylococcus aureus* bacteremia - consider the source. *N Engl J Med* 344:55-56.
6. Chambers HF. (2001) The changing epidemiology of *Staphylococcus aureus*? *Emerg Infect Dis* 7:178-182.
7. Groom AV, Wolsey DH, Naimi TS, et al. (2001) Community-acquired methicillin-resistant *Staphylococcus aureus* in a rural American Indian community. *JAMA* 286:1201-1205.
8. Morin CA, Hadler JL. (2001) Population-based incidence and characteristics of community-onset *Staphylococcus aureus* infections with bacteremia in 4 metropolitan Connecticut area, 1998. *J Infect Dis* 184:1029-1034.
9. Kallen A, Driscoll T, Thornton S, et al (2000) Increase in community-acquired methicillin-resistant *Staphylococcus aureus* at a naval medical center. *Infect Control Hosp Epidemiol* 21:223-226.
10. CDC (1999) Four pediatric deaths from community-acquired methicillin-resistant *Staphylococcus aureus* - Minnesota and North Dakota, 1997-1999. *MMWR* 48:707-710.
11. Edmond MB, Ober JF, Dawson JD, et al. (1996) Vancomycin-resistant enterococcal bacteremia: Natural history and attributable mortality. *Clin Infect Dis* 23:1234-1239.
12. Murray BE. (2000) Vancomycin-resistant enterococcal infections. *N Engl J Med* 342:710-721.
13. Elizaga ML, Weinstein RA, Hayden MK (2002) Patients in long-term care facilities: a reservoir for vancomycin-resistant enterococci. *Clin Infect Dis* 34:441-446.
14. D'Agata EM, Jirjis J, Gouldin C, et al (2001) Community dissemination of Vancomycin-resistant *Enterococcus faecium*. *Am J Infect Control* 29:316-320.
15. Mylotte JM, Goodnough S, Tayara A. (2001) Antibiotic-resistant organisms among long-term care facility residents on admission to an inpatient geriatric unit: Retrospective and prospective surveillance. *Am J Infect Control* 29:139-144.
16. Whitney CG, Farley MM, Hadler J, et al; (2000) Increasing prevalence of multidrug-resistant Active Bacterial Core Surveillance Program of the Emerging Infections Program Network. *Streptococcus pneumoniae* in the United States. *N Engl J Med* 343:1917-1924.
17. Doern GV, Heilmann KP, Huynh HK, et al. (2001) Antimicrobial resistant among clinical isolates of *Streptococcus pneumoniae* in the United States during 1999-2000, including a comparison of resistant rates since 1994-1995. *Antimicrob Agents Chemother* 45:1721-1729.
18. Gonzales R, Steiner JF, Sande MA. (1997) Antibiotic prescribing for adults with colds, upper respiratory tract infections, and bronchitis by ambulatory care physicians. *JAMA*

278:901-904.

19. Hofmann J, Cetron MS, Farley MM, et al. (1995) The prevalence of drug-resistant *Streptococcus pneumoniae* in Atlanta. *N Engl J Med* 333:481-486.
20. McCaig LF, and Hughes JM. (1995) Trends in antimicrobial drug prescribing among office-based physicians in the United States. *JAMA* 273:214-219.
21. CDC (1997) Defining the public health impact of drug-resistant *Streptococcus pneumoniae*: Report of a working group. *MMWR* 45:10-13.
22. Heffelfinger JD, Dowell SF, Jorgensen JH, et al. (2000) Management of community-acquired pneumonia in the era of pneumococcal resistance: a report from the Drug-Resistant *Streptococcus pneumoniae* Therapeutic Working Group. *Arch Intern Med* 160:1399-1408.
23. McIntosh K. (2002) Community-acquired pneumonia in children. *N Engl J Med* 346:429-437.
24. Eskola J, Kilpi T, Palmu A, et al. (2001) Efficacy of a pneumococcal conjugate vaccine against acute otitis media. *N Engl J Med* 344:403-409.
25. Diekema DJ, Pfaller MA, Jones RN, et al. (2000) Trends in antimicrobial susceptibility of bacterial pathogens isolated from patient with bloodstream infections in the USA, Canada and Latin America SENTRY Participants Group. *Int J Antimicrob Agents* 13:257-271.
26. Weinstein RA. (1998) Nosocomial infection update. *Emerg Infect Dis* 4:416-420.
27. Nathisuwan S, Burgess DS, Lewis JS. (2001) Extended-spectrum β -lactamases: epidemiology, detection, and treatment. *Pharmacother* 21:920-928.
28. Sattler CA, Mason EO, Kaplan SL. (2000) Nonrespiratory *Stenotrophomonas maltophilia* infection at a children's hospital. *Clin Infect Dis* 31:1321-1330.
29. Jellison TK, McKinnon PS, Rybak MJ. (2001) Epidemiology, resistance, and outcomes of *Acinetobacter baumannii* bacteremia treated with imipenem-cilastatin or ampicillin-sulbactam. *Pharmacother* 21:142-148.
30. Husni RN. (1999) Risk factors for an outbreak of multi-drug-resistant *Acinetobacter* nosocomial pneumonia among incubated patients. *Chest* 115:1378-1382.
31. DJ, Pfaller MA, Schmitz FJ, et al. (2001) Survey of infections due to *Staphylococcus* species: frequency of occurrence and antimicrobial susceptibility of isolates collected in the United States, Canada, Latin America, Europe, and the Western Pacific region for the SENTRY Antimicrobial Surveillance Program, 1997-1999. *Clin Infect Dis* 32 Suppl 2:S114-132.
32. Jones RN, Low DE, and Pfaller MA. (1999) Epidemiologic trends in nosocomial and community-acquired infections due to antibiotic-resistant Gram-positive bacteria: the role of streptogramins and other newer compounds. *Diagn Microbiol Infect Dis* 33:101-112.
33. Smith TL, Pearson ML, Wilcox KR, et al. for the Glycopeptide-Intermediate *Staphylococcus aureus* Working Group*. (1999) Emergence of vancomycin resistance in *Staphylococcus aureus*. *N Engl J Med* 340:493-501.
34. Garrett DO, Jochimsen E, Murfitt K, et al. (1999) The emergence of decreased susceptibility to vancomycin in *Staphylococcus epidermidis*. *Infect Control Hosp Epidemiol* 20:167-170.
35. Henriques NB, Novak R, Ortqvist AA, et al. (2001) Clinical isolates of *Streptococcus pneumoniae* that exhibit tolerance of vancomycin. *Clin Infect Dis* 32:552-558.
36. Khurshid MA, Chou T, Carey R, et al. (2000) *Staphylococcus aureus* with reduced susceptibility to vancomycin - Illinois, 1999. *MMWR* 48:1165-1167.
37. CDC (1997) Interim guidelines for prevention and control of staphylococcal infection associated with reduced susceptibility to vancomycin. *MMWR* 46:626-628, 635-636.
38. CDC (2000) Laboratory capacity to detect antimicrobial resistance, 1998. *MMWR* 48:1167-

1171.

39. Schuchat A, Hilger T, Zell E, et al. (2001) Active Bacterial Core Surveillance of the Emerging Infections Program Network. *Emerg Infect Dis* 7: 92-99.
40. Doern GV, Heilmann KP, Huynh HK, et al. (2001) Antimicrobial resistance among clinical isolates of *Streptococcus pneumoniae* in the United States during 1999-2000, including a comparison of resistance rates since 1994-1995. *Antimicrob Agents Chemother* 45:1721-1729.
41. Hyde TB, Gay K, Stephens DS, et. al.; for the Active Bacterial Core Surveillance/Emerging Infections Program Network (2001) Macrolide resistance among invasive *Streptococcus pneumoniae* isolates. *JAMA* 286:1857-1862.
42. Pfaller MA, Jones RN. For the MTSTIC Study Group (Americas). (2000) MYSYIC (meropenem yearly susceptibility test information collection) results from the Americas: resistance implications in the treatment of serious infections. *J Antimicro Chemother* 46, Topic T2, 25-37.

Exhibit 1 : MRSA Isolates by Body Sites, 1991-2000

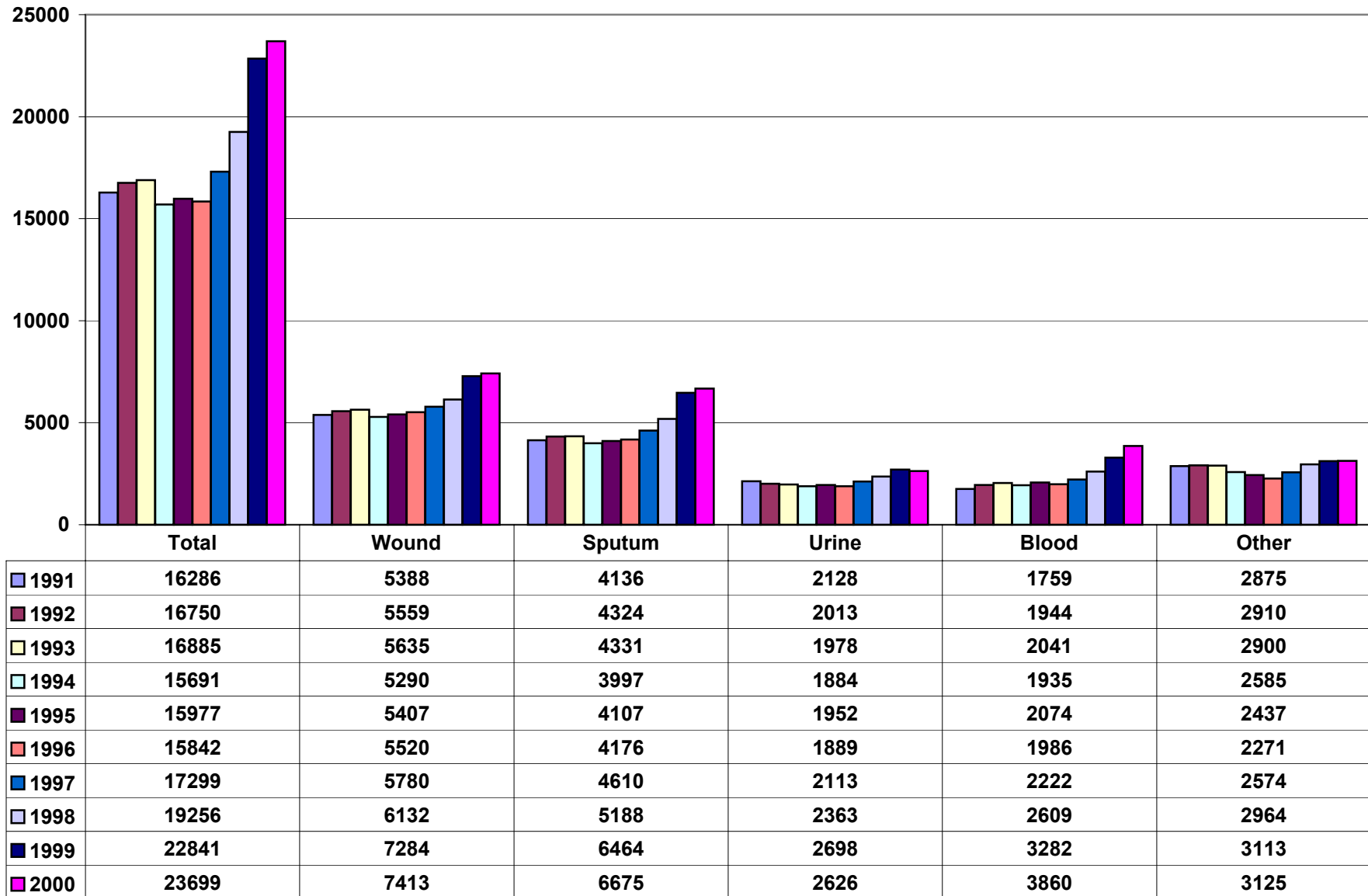


Exhibit 2 : MRSA Rate by Year (Blood Isolates per 100,000 Population)

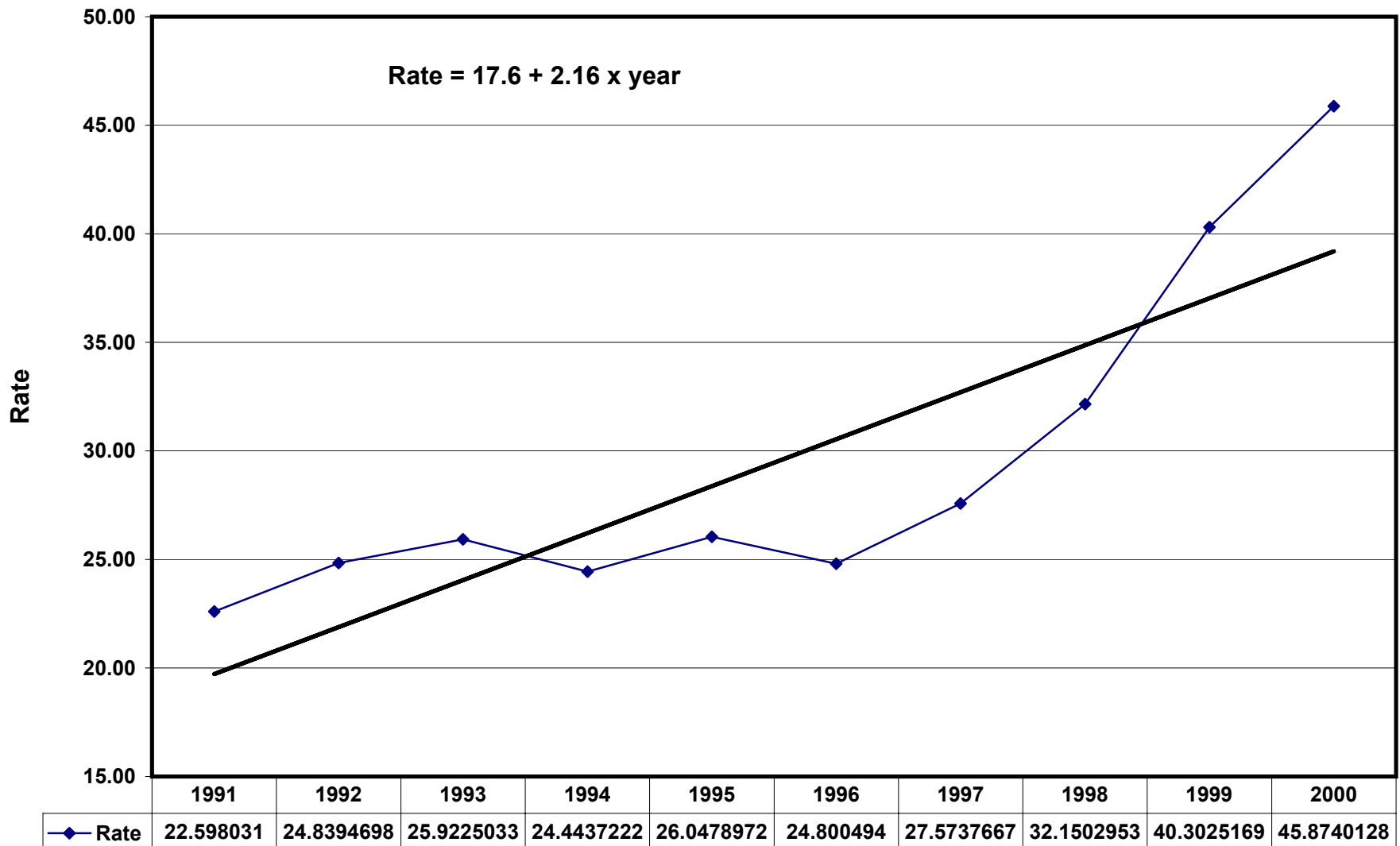


Exhibit 3 : Frequency of MRSA by Facility, 2000
All Hospitals Ranked (from Highest to Lowest) by MRSA Rate
(Total MRSA Isolates / 100 Occupied Beds / Month)

Rank	Facility Code	# Iso. / Month	Rate (2000)	Rate (1999)
1	71	36.17	30.82	23.47
2	79	30.50	29.23	39.00
3	116	24.67	26.91	14.96
4	119	15.00	26.16	21.47
5	98	25.67	25.88	20.13
6	36	88.58	22.41	17.29
7	76	47.83	21.51	20.04
8	55	23.17	21.26	19.82
9	112	88.58	20.61	17.39
10	21*	29.00	19.45	15.20
11	54	23.67	18.91	20.47
12	33	76.17	18.36	15.23
13	20*	18.17	18.35	11.90
14	73	26.75	18.21	12.01
15	117	34.33	18.14	12.91
16	45	20.00	17.95	12.21
17	59	52.92	17.36	21.12
18	25	38.08	17.35	14.68
19	103*	16.67	16.03	12.80
20	3	24.25	15.77	21.13
21	91	30.33	15.48	14.05
22	18	13.25	15.39	14.10
23	12	22.83	15.37	16.51
24	82	28.83	15.34	47.18
25	72*	7.00	15.22	13.61
26	87	14.92	15.12	10.02
27	19*	8.83	15.10	16.40
28	56	17.50	14.96	13.30
29	26*	20.33	14.95	15.64
30	46	20.58	14.85	17.98
31	102	32.92	14.59	9.92
32	28	28.33	14.36	11.20
33	43	32.42	14.23	12.99
34	48	19.58	13.85	19.00
35	60	34.42	13.47	9.09
36	42	15.92	13.24	10.82
37	108*	11.08	13.19	12.78
38	51*	11.83	13.15	14.71
39	17*	12.08	13.13	9.98
40	95	32.33	12.83	11.49
41	47	20.25	12.56	9.99
42	50	34.50	12.50	15.92
43	52	20.67	12.22	13.74
44	74*	20.42	12.08	12.90

Rank	Facility Code	# Iso. / Month	Rate (2000)	Rate (1999)
45	66	12.17	12.05	17.26
46	97	24.33	11.98	11.91
47	100*	22.08	11.81	9.40
48	13	35.83	11.75	11.46
49	75	7.50	10.59	10.47
50	64*	25.00	10.33	10.51
51	15	25.08	10.28	11.25
52	23	18.33	9.88	10.57
53	77	5.58	9.84	9.39
54	44*	7.08	9.84	8.13
55	27	13.50	9.81	9.70
56	90	33.75	9.67	7.47
57	109	3.92	9.59	12.87
58	41	16.42	9.57	9.04
59	35	13.00	9.37	8.93
60	31	36.00	9.25	7.50
61	96	13.42	9.20	10.94
62	29	5.25	8.96	7.33
63	94	35.25	8.91	6.84
64	114	13.33	8.85	6.47
65	67	10.00	8.84	9.58
66	122	7.92	8.83	-
67	86	15.75	8.78	4.62
68	61*	10.83	8.74	11.45
69	81	45.17	8.63	10.77
70	78	13.92	8.45	8.38
71	4	48.50	8.34	9.36
72	49	17.67	8.17	9.81
73	101	12.67	8.17	8.28
74	120*	12.50	7.72	7.42
75	83*	15.00	7.58	6.34
76	38	4.83	7.47	5.88
77	88	25.75	7.31	9.06
78	92	11.00	6.96	8.03
79	9	19.17	6.68	7.16
80	8	24.58	5.89	6.43
81	118*	4.42	5.89	7.32
82	80	8.08	5.67	10.85
83	53	23.83	5.42	5.20
84	40*	3.00	4.92	13.08
85	62	10.17	4.06	2.99
86	34	3.50	4.01	3.71
87	84	3.83	3.87	4.96
88	6	4.67	2.52	4.20
State Total		1974.92	12.27	11.38

* Estimated based on the assumption that each facility maintains the same proportion of occupied beds within the merged hospital group before they were merged.

Note : Rate = number of total MRSA isolates per 100 occupied beds per month.

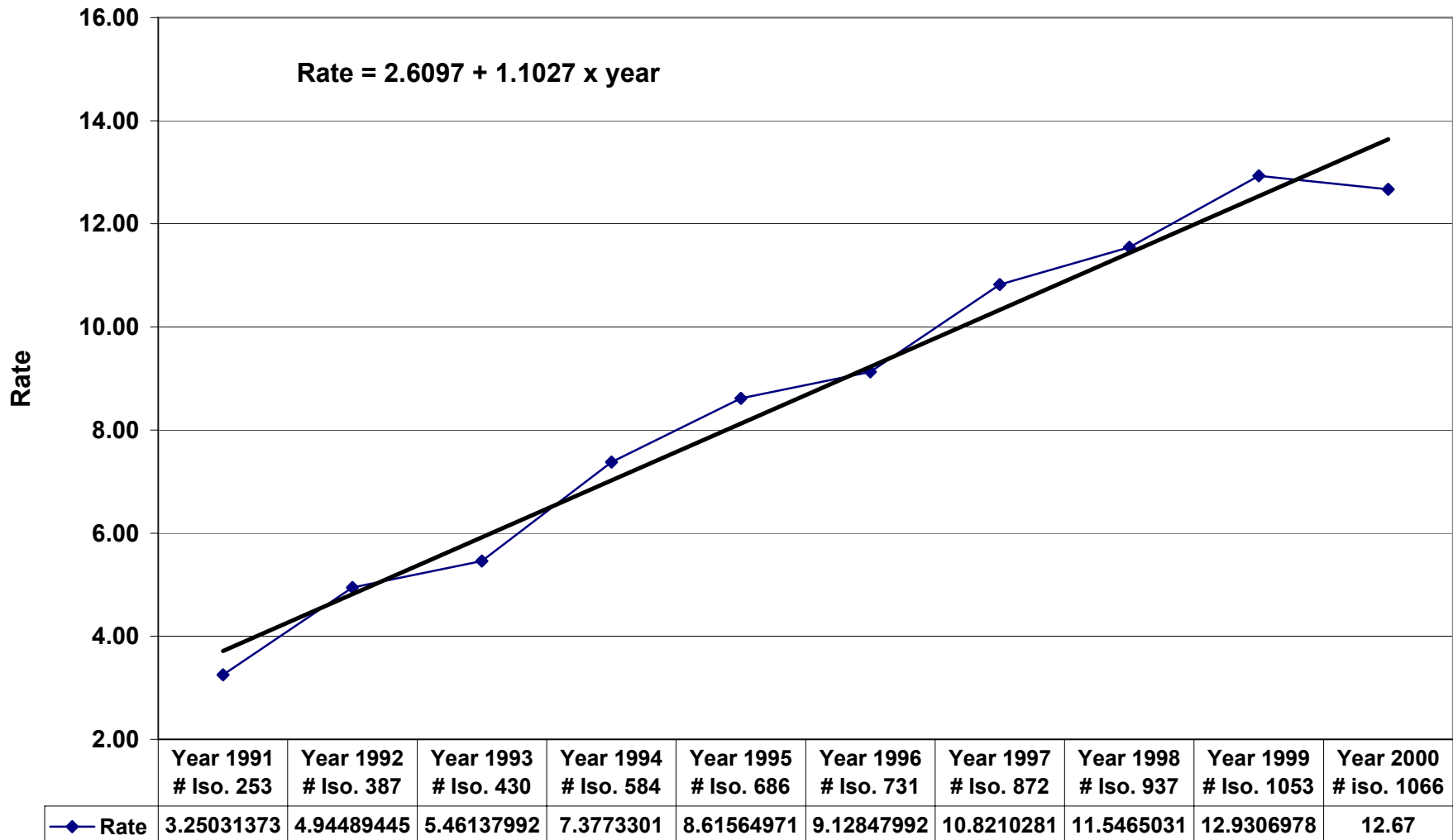
**Exhibit 4 : Number and Rate of Total MRSA Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Mercer	1704	7.19%	485.80	465.76
Essex	3000	12.66%	378.01	462.56
Ocean	1814	7.65%	355.05	308.92
Morris	1645	6.94%	349.84	316.26
Union	1820	7.68%	348.30	362.30
Middlesex	2563	10.81%	341.66	336.79
Cumberland	439	1.85%	299.79	309.75
Sussex-Warren*	671	2.83%	272.10	198.36
Atlantic-Cape May*	962	4.06%	271.08	347.12
Camden	1376	5.81%	270.37	252.24
Bergen	2192	9.25%	247.93	256.69
Passaic	1184	5.00%	242.10	208.84
Hudson	1324	5.59%	217.41	220.87
Monmouth	1318	5.56%	214.20	207.54
Burlington	869	3.67%	205.25	157.12
Salem	105	0.44%	163.34	164.25
Gloucester	301	1.27%	118.19	135.33
Hunterdon-Somerset*	412	1.74%	98.22	102.99
State Total	23699	100.00%	281.65	280.48

Rate = Number of total MRSA isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

**Exhibit 5 : Rate of Antibiotic-Resistant Blood Isolates by Year
(Total Isolates per 100,000 Population)**



**Exhibit 6 : Frequency of Antibiotic-Resistant Blood Isolates by Facility, 2000
In Descending Order of Number of Isolates per 100 Occupied Beds**

Rank	Fac. Code	Num. Isolates	Percentage	Rate (2000)	Rate (1999)
1	88	78	7.32%	22.14	6.27
2	59	56	5.25%	18.38	31.44
3	112	77	7.22%	17.92	14.44
4	54	22	2.06%	17.58	13.52
5	100*	32	3.00%	17.11	14.69
6	56	20	1.88%	17.09	13.30
7	28	31	2.91%	15.71	4.71
8	66	14	1.31%	13.87	8.83
9	117	26	2.44%	13.73	18.65
10	81	69	6.47%	13.18	17.52
11	64*	30	2.81%	12.40	9.63
12	62	31	2.91%	12.39	22.29
13	73	18	1.69%	12.25	17.65
14	48	17	1.59%	12.03	20.72
15	44*	8	0.75%	11.11	8.64
16	8	45	4.22%	10.78	7.04
17	60	27	2.53%	10.57	12.24
18	53	45	4.22%	10.24	3.70
19	42	12	1.13%	9.98	2.58
20	103*	10	0.94%	9.62	1.79
21	92	15	1.41%	9.49	3.28
22	51*	8	0.75%	8.89	3.70
23	12	12	1.13%	8.08	3.54
24	45	9	0.84%	8.08	6.03
25	50	20	1.88%	7.24	9.44
26	67	8	0.75%	7.07	6.14
27	76	15	1.41%	6.74	4.64
28	43	15	1.41%	6.58	6.66
29	36	26	2.44%	6.58	9.32
30	4	38	3.56%	6.54	5.36
31	61*	8	0.75%	6.45	8.13
32	83*	12	1.13%	6.06	5.26
33	33	25	2.35%	6.03	6.59
34	97	12	1.13%	5.91	5.35
35	46	8	0.75%	5.77	8.27
36	91	11	1.03%	5.62	6.23
37	25	12	1.13%	5.47	2.88
38	17*	5	0.47%	5.43	5.49

Rank	Fac. Code	Num. Isolates	Percentage	Rate (2000)	Rate (1999)
39	38	3	0.28%	4.64	7.67
40	90	15	1.41%	4.30	3.25
41	75	3	0.28%	4.24	4.14
42	84	4	0.38%	4.04	3.72
43	3	6	0.56%	3.90	2.42
44	79	4	0.38%	3.83	1.75
45	94	15	1.41%	3.79	2.37
46	116	3	0.28%	3.27	7.93
47	102	7	0.66%	3.10	2.93
48	47	5	0.47%	3.10	0.00
49	78	5	0.47%	3.04	1.21
50	31	11	1.03%	2.83	4.68
51	95	7	0.66%	2.78	3.87
52	49	6	0.56%	2.78	3.26
53	96	4	0.38%	2.74	0.59
54	23	5	0.47%	2.69	5.94
55	118*	2	0.19%	2.67	2.70
56	71	3	0.28%	2.56	0.92
57	74*	4	0.38%	2.36	2.58
58	26*	3	0.28%	2.21	1.45
59	82	4	0.38%	2.13	16.13
60	20*	2	0.19%	2.02	2.86
61	101	3	0.28%	1.93	0.68
62	120*	3	0.28%	1.85	0.00
63	19*	1	0.09%	1.71	1.59
64	21*	2	0.19%	1.34	0.00
65	41	2	0.19%	1.17	4.49
66	18	1	0.09%	1.16	0.00
67	122	1	0.09%	1.12	-
68	87	1	0.09%	1.01	6.06
69	98	1	0.09%	1.01	6.01
70	15	2	0.19%	0.82	4.91
71	114	1	0.09%	0.66	0.61
Total		1066	100.00%	7.64	7.48

* Estimated based on the assumption that each facility maintains the same proportion of occupied beds within the merged hospital group before they were merged.

Note : Rate = number of isolates per 100 occupied beds per year.

**Exhibit 7 : Number and Rate of Antibiotic Resistant Blood Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Essex	302	28.33%	38.05	35.32
Middlesex	186	17.45%	24.79	26.74
Mercer	61	5.72%	17.39	12.88
Passaic	66	6.19%	13.50	8.04
Hudson	77	7.22%	12.64	17.00
Union	65	6.10%	12.44	14.84
Camden	59	5.53%	11.59	14.11
Bergen	74	6.94%	8.37	9.45
Cumberland	11	1.03%	7.51	4.28
Ocean	37	3.47%	7.24	8.24
Morris	29	2.72%	6.17	8.41
Monmouth	35	3.28%	5.69	5.07
Burlington	23	2.16%	5.43	4.71
Hunterdon-Somerset*	20	1.88%	4.77	4.36
Salem	3	0.28%	4.67	10.85
Atlantic-Cape May*	12	1.13%	3.38	2.07
Sussex-Warren*	4	0.38%	1.62	5.71
Gloucester	2	0.19%	0.79	4.79
State Total	1066	100.00%	12.67	12.93

Rate = Number of isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

Exhibit 8 : Vancomycin-Resistant Gram-Positive Cocci Isolated from Blood Cultures, 1994-2000

	1994		1995		1996		1997		1998		1999		2000	
Organism Name	Frequency		Frequency		Frequency		Frequency		Frequency		Frequency		Frequency	
VRE	298	97.70%	337	97.40%	404	97.12%	477	98.75%	510	97.51%	570	99.48%	566	99.12%
<i>Enterococcus faecium</i>	231	75.74%	254	73.41%	296	71.15%	333	69.38%	329	62.91%	401	69.98%	396	69.35%
<i>Enterococcus faecalis</i>	31	10.16%	30	8.67%	36	8.65%	48	10.00%	80	15.30%	101	17.63%	114	19.96%
<i>Enterococcus</i> spp.	30	9.84%	43	12.43%	63	15.14%	73	15.21%	84	16.06%	54	9.42%	24	4.20%
<i>Enterococcus avium</i>	2	0.66%	2	0.58%	3	0.72%	5	1.04%	4	0.76%	1	0.17%	2	0.35%
<i>Enterococcus durans</i>	4	1.31%	7	2.02%	6	1.44%	2	0.42%	2	0.38%	1	0.17%	1	0.18%
<i>Enterococcus raffinosus</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	3	0.52%	0	0.00%
<i>Enterococcus gallinarum</i>	0	0.00%	1	0.29%	0	0.00%	10	2.08%	9	1.72%	8	1.40%	27	4.73%
<i>Enterococcus casseliflavus</i>	0	0.00%	0	0.00%	0	0.00%	3	0.63%	2	0.38%	1	0.17%	2	0.35%
<i>Streptococcus pneumoniae</i>	0	0.00%	1	0.29%	1	0.24%	1	0.21%	0	0.00%	1	0.17%	0	0.00%
Viridans streptococci	1	0.33%	3	0.87%	5	1.20%	2	0.42%	0	0.00%	0	0.00%	0	0.00%
<i>Streptococcus equinus</i>	0	0.00%	2	0.58%	0	0.00%	0	0.00%	0	0.00%	1	0.17%	1	0.18%
<i>Streptococcus</i> spp.	1	0.33%	0	0.00%	1	0.24%	1	0.21%	2	0.38%	1	0.17%	0	0.00%
<i>Staphylococcus aureus</i>	0	0.00%	0	0.00%	2	0.48%	0	0.00%	1	0.19%	0	0.00%	0	0.00%
<i>Staphylococcus epidermidis</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.18%
<i>Staphylococcus auricularis</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.19%	0	0.00%	0	0.00%
<i>Staphylococcus</i> coag. neg.	4	1.31%	1	0.29%	0	0.00%	0	0.00%	1	0.19%	0	0.00%	1	0.18%
<i>Micrococcus</i> spp.	0	0.00%	0	0.00%	0	0.00%	0	0.00%	4	0.76%	0	0.00%	0	0.00%
<i>Leuconostoc</i> spp.	1	0.33%	1	0.29%	2	0.48%	0	0.00%	2	0.38%	0	0.00%	0	0.00%
<i>Pediococcus</i> spp.	0	0.00%	1	0.29%	1	0.24%	2	0.42%	2	0.38%	0	0.00%	2	0.35%
Total	305	100.00%	346	100.00%	416	100.00%	480	100.00%	523	100.00%	573	100.00%	571	100.00%

Exhibit 9 : Trend of Vancomycin-Resistant Enterococci Blood Isolates, 1992-2000

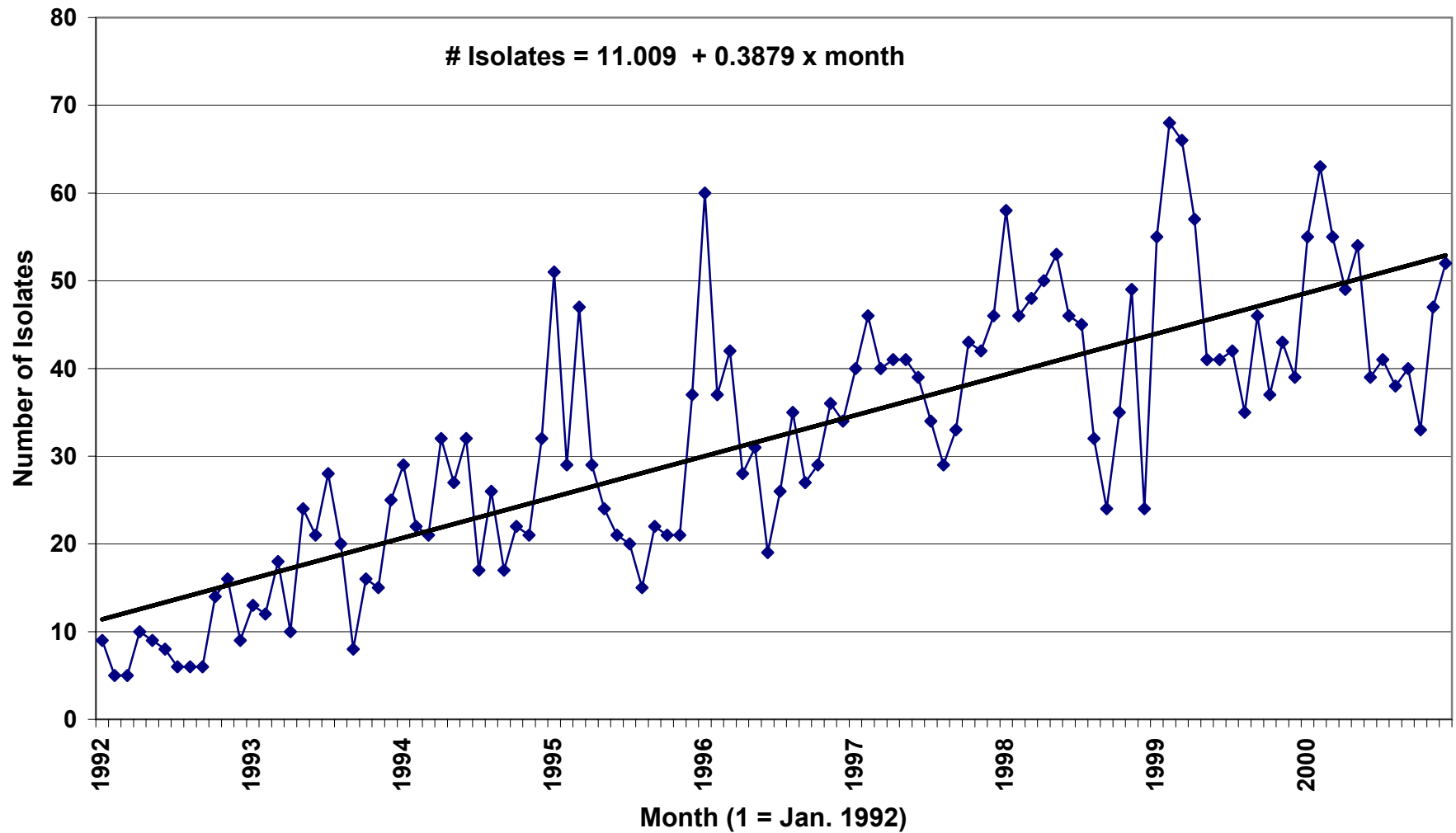


Exhibit 10 : Frequency of Vancomycin-Resistant Enterococci by Facility, 2000
All Hospitals Ranked (from Highest to Lowest) by Vancomycin-Resistant Enterococci Rate
(Total Blood Isolates / 100 Occupied Beds)

Rank	Fac. Code	Num. Isolates	Percentage	Rate (2000)	Rate (1999)
1	112	71	12.54%	16.52	14.44
2	100*	22	3.89%	11.76	9.95
3	73	17	3.00%	11.57	9.11
4	88	36	6.36%	10.22	5.72
5	28	18	3.18%	9.12	4.18
6	54	11	1.94%	8.79	3.76
7	117	16	2.83%	8.45	15.55
8	44*	6	1.06%	8.33	2.47
9	53	34	6.01%	7.74	2.77
10	103*	8	1.41%	7.69	1.79
11	92	11	1.94%	6.96	2.62
12	81	35	6.18%	6.69	7.35
13	43	15	2.65%	6.58	5.77
14	59	20	3.53%	6.56	11.87
15	8	24	4.24%	5.75	3.29
16	48	8	1.41%	5.66	15.07
17	51*	5	0.88%	5.56	2.47
18	50	14	2.47%	5.07	7.93
19	4	29	5.12%	4.99	3.58
20	61*	6	1.06%	4.84	4.88
21	64*	11	1.94%	4.55	2.75
22	46	6	1.06%	4.33	7.52
23	60	11	1.94%	4.31	10.02
24	12	6	1.06%	4.04	2.13
25	76	8	1.41%	3.60	4.18
26	42	4	0.71%	3.33	0.86
27	17*	3	0.53%	3.26	3.30
28	25	7	1.24%	3.19	2.47
29	66	3	0.53%	2.97	4.91
30	90	10	1.77%	2.86	3.25
31	36	11	1.94%	2.78	2.45
32	95	7	1.24%	2.78	3.10
33	56	3	0.53%	2.56	1.66
34	62	6	1.06%	2.40	3.78

Rank	Fac. Code	Num. Isolates	Percentage	Rate (2000)	Rate (1999)
35	102	5	0.88%	2.22	2.44
36	26*	3	0.53%	2.21	1.45
37	82	4	0.71%	2.13	14.52
38	91	4	0.71%	2.04	3.35
39	120*	3	0.53%	1.85	0.00
40	49	4	0.71%	1.85	1.63
41	45	2	0.35%	1.79	2.59
42	67	2	0.35%	1.77	2.63
43	71	2	0.35%	1.70	0.92
44	33	7	1.24%	1.69	1.85
45	38	1	0.18%	1.55	4.60
46	75	1	0.18%	1.41	1.38
47	3	2	0.35%	1.30	1.21
48	47	2	0.35%	1.24	0.00
49	78	2	0.35%	1.21	0.00
50	74*	2	0.35%	1.18	2.06
51	116	1	0.18%	1.09	2.98
52	94	4	0.71%	1.01	0.53
53	83*	2	0.35%	1.01	0.96
54	20*	1	0.18%	1.01	2.86
55	97	2	0.35%	0.98	0.49
56	31	3	0.53%	0.77	1.30
57	96	1	0.18%	0.69	0.00
58	21*	1	0.18%	0.67	0.00
59	101	1	0.18%	0.64	0.00
60	41	1	0.18%	0.58	2.57
61	15	1	0.18%	0.41	2.46
State Total		566	100.00%	4.39	4.32

* Estimated based on the assumption that each facility maintains the same proportion of occupied beds within the merged hospital group before they were merged.

Note : Rate = number of isolates per 100 occupied beds per year.

**Exhibit 11 : Number and Rate of Vancomycin-Resistant Enterococci Blood Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Essex	152	26.86%	19.15	19.13
Middlesex	111	19.61%	14.80	14.90
Mercer	39	6.89%	11.12	8.09
Passaic	37	6.54%	7.57	3.50
Union	36	6.36%	6.89	11.63
Camden	29	5.12%	5.70	9.14
Cumberland	8	1.41%	5.46	2.85
Bergen	47	8.30%	5.32	5.83
Hudson	26	4.59%	4.27	4.88
Burlington	18	3.18%	4.25	3.77
Monmouth	21	3.71%	3.41	3.60
Ocean	16	2.83%	3.13	4.22
Morris	12	2.12%	2.55	2.16
Atlantic-Cape May*	8	1.41%	2.25	1.18
Salem	1	0.18%	1.56	6.20
Hunterdon-Somerset*	4	0.71%	0.95	0.97
Sussex-Warren*	1	0.18%	0.41	2.45
Gloucester	0	0.00%	0.00	1.60
State Total	566	100.00%	6.73	7.00

Rate = Number of isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

Exhibit 12 : Drug Resistance Profile of Vancomycin-Resistant Enterococci Blood Isolates, 1994-2000

[illegible]

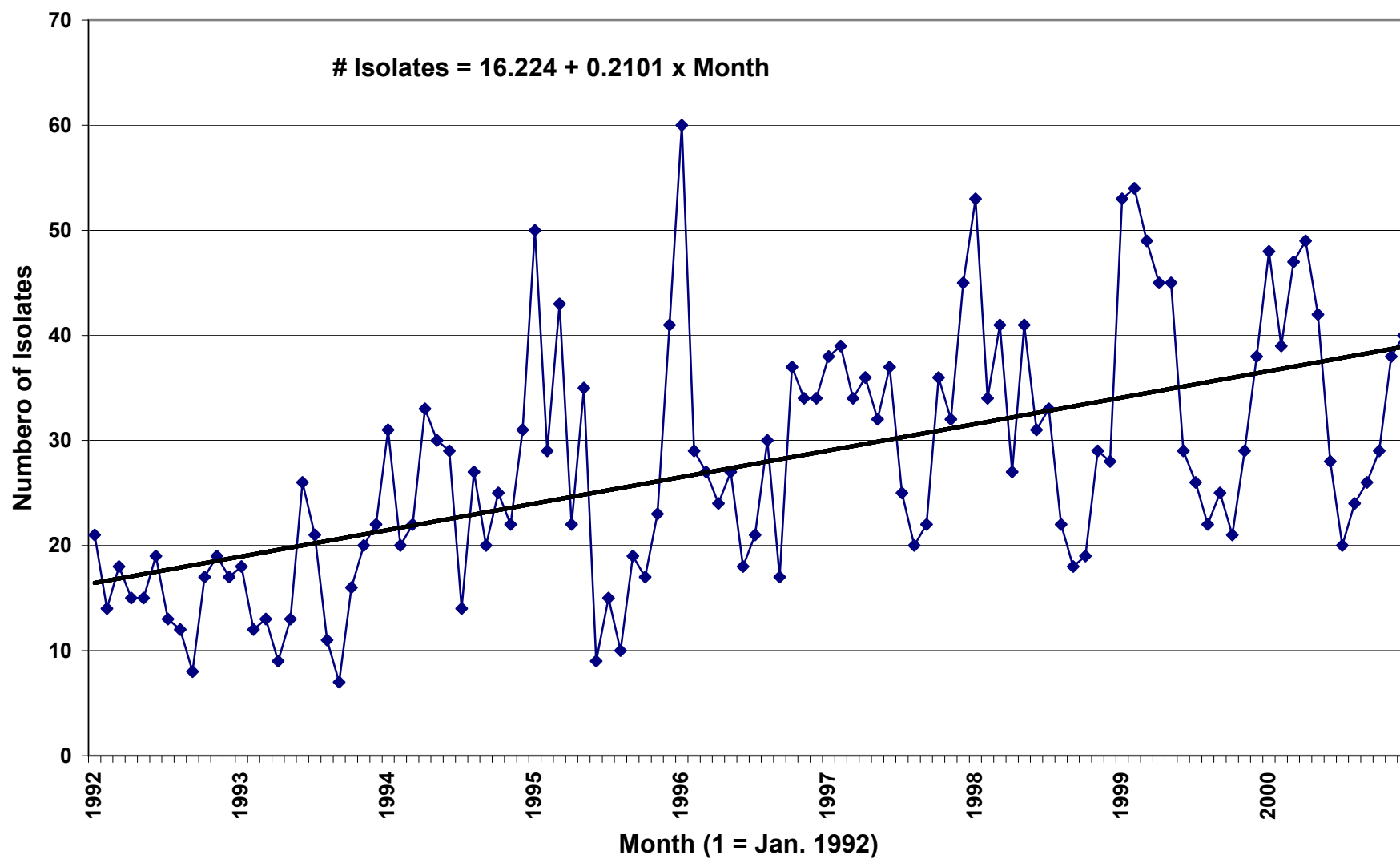
Antibiotic	Year Organism	1994		1995		1996		1997		1998		1999		2000	
		%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n
Chloramphenicol	<i>E. faecium</i>	1.89%	53	2.53%	79	8.60%	93	1.36%	147	0.66%	151	1.09%	183	1.85%	162
	<i>E. faecalis</i>	40.00%	5	0.00%	3	50.00%	2	44.44%	9	33.33%	18	33.33%	33	53.13%	32
	<i>E. spp.</i>	0.00%	7	0.00%	7	16.67%	12	10.00%	20	0.00%	21	5.56%	18	0.00%	10
Tetracycline	<i>E. faecium</i>	40.25%	159	41.57%	166	36.79%	212	48.04%	204	54.42%	215	57.77%	251	65.57%	273
	<i>E. faecalis</i>	68.42%	19	31.82%	22	33.33%	15	56.00%	25	40.54%	37	58.21%	67	56.06%	66
	<i>E. spp.</i>	40.00%	25	52.78%	36	39.29%	56	60.00%	60	54.39%	57	67.65%	34	54.55%	11
Rifampin	<i>E. faecium</i>	46.67%	30	45.45%	22	39.29%	28	33.33%	42	44.74%	38	48.78%	41	48.54%	103
	<i>E. faecalis</i>	50.00%	2	-	-	0.00%	3	25.00%	4	40.00%	5	0.00%	6	20.00%	25
	<i>E. spp.</i>	50.00%	2	66.67%	3	28.57%	7	0.00%	6	33.33%	3	0.00%	1	50.00%	4
Nitrofurantoin	<i>E. faecium</i>	20.00%	10	5.88%	17	0.00%	10	6.25%	16	0.00%	13	0.00%	19	2.53%	79
	<i>E. faecalis</i>	0.00%	1	0.00%	4	0.00%	5	0.00%	3	0.00%	5	0.00%	14	0.00%	23
	<i>E. spp.</i>	0.00%	7	11.11%	9	0.00%	3	10.53%	19	4.35%	23	0.00%	2	40.00%	5
Quinupristin- Dalfopristin	<i>E. faecium</i>	-	-	-	-	-	-	-	-	-	-	0.00%	4	0.00%	45
	<i>E. faecalis</i>	-	-	-	-	-	-	-	-	-	-	100.00%	1	100.00%	3
	<i>E. spp.</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.00%	1
Linezolid	<i>E. faecium</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.00%	8
	<i>E. faecalis</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.00%	4
	<i>E. spp.</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.00%	0

n = Number of isolates tested for the specific antibiotic.

Exhibit 13 : Penicillin-Resistant Streptococci / Enterococci Blood Isolates, 1994-2000

	1994		1995		1996		1997		1998		1999		2000	
Organism Name	Frequency		Frequency		Frequency		Frequency		Frequency		Frequency		Frequency	
<i>Enterococcus faecium</i>	194	63.82%	188	60.06%	228	63.69%	210	53.03%	216	57.45%	264	60.55%	244	56.74%
<i>Enterococcus faecalis</i>	9	2.96%	10	3.19%	4	1.12%	14	3.54%	14	3.72%	28	6.42%	20	4.65%
<i>Enterococcus durans</i>	4	1.32%	4	1.28%	5	1.40%	1	0.25%	0	0.00%	1	0.23%	2	0.47%
<i>Enterococcus gallinarum</i>	0	0.00%	1	0.32%	0	0.00%	10	2.53%	7	1.86%	6	1.38%	24	5.58%
<i>Enterococcus avium</i>	1	0.33%	2	0.64%	2	0.56%	4	1.01%	1	0.27%	3	0.69%	1	0.23%
<i>Enterococcus casseliflavus</i>	0	0.00%	0	0.00%	0	0.00%	1	0.25%	1	0.27%	1	0.23%	3	0.70%
<i>Enterococcus raffinosus</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.23%	2	0.47%
<i>Enterococcus</i> spp.	22	7.24%	17	5.43%	38	10.61%	55	13.89%	47	12.50%	21	4.82%	8	1.86%
<i>Streptococcus pneumoniae</i>	62	20.39%	83	26.52%	67	18.72%	81	20.45%	72	19.15%	98	22.48%	110	25.58%
Viridans streptococci	4	1.32%	2	0.64%	8	2.23%	14	3.54%	9	2.39%	10	2.29%	8	1.86%
<i>Streptococcus bovis</i>	1	0.33%	0	0.00%	0	0.00%	1	0.25%	0	0.00%	0	0.00%	0	0.00%
<i>Streptococcus equinus</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.27%	0	0.00%	0	0.00%
<i>Streptococcus mutans</i>	0	0.00%	1	0.32%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Streptococcus salivarius</i>	0	0.00%	0	0.00%	0	0.00%	1	0.25%	0	0.00%	1	0.23%	0	0.00%
<i>Streptococcus mitis</i>	4	1.32%	2	0.64%	2	0.56%	2	0.51%	2	0.53%	0	0.00%	6	1.40%
<i>Streptococcus sanguis</i>	1	0.33%	0	0.00%	1	0.28%	0	0.00%	1	0.27%	0	0.00%	0	0.00%
<i>Streptococcus crista</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.23%	0	0.00%
<i>Streptococcus intermedius</i>	0	0.00%	1	0.32%	0	0.00%	2	0.51%	2	0.53%	0	0.00%	0	0.00%
<i>Streptococcus acidominimus</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.23%
<i>Streptococcus pyogenes</i>	1	0.33%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Streptococcus agalactiae</i>	0	0.00%	1	0.32%	0	0.00%	0	0.00%	1	0.27%	0	0.00%	1	0.23%
<i>Streptococcus</i> not Group D	0	0.00%	0	0.00%	1	0.28%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
alpha <i>Streptococcus</i>	0	0.00%	1	0.32%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Streptococcus</i> spp.	1	0.33%	0	0.00%	2	0.56%	0	0.00%	2	0.53%	1	0.23%	0	0.00%
State Total	304	100%	313	100%	358	100%	396	100%	376	100%	436	100%	430	100.00%

Exhibit 14 : Trend of Penicillin-Resistant Streptococci / Enterococci Blood Isolates, 1992-2000



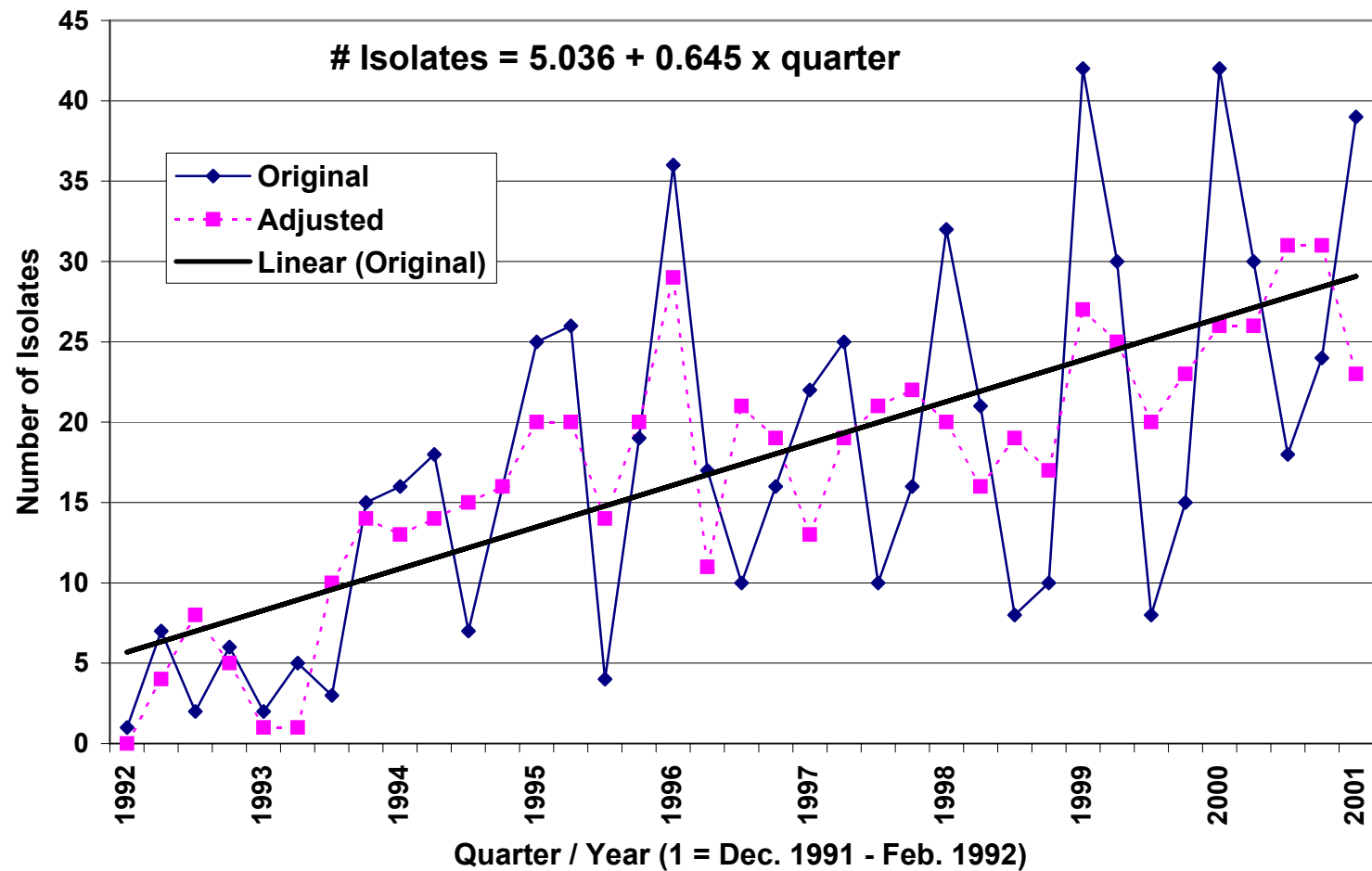
**Exhibit 15 : Number and Rate of Penicillin-Resistant Streptococci / Enterococci
Blood Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Essex	132	30.70%	16.63	19.80
Mercer	29	6.74%	8.27	2.70
Passaic	36	8.37%	7.36	3.30
Hudson	36	8.37%	5.91	5.06
Middlesex	44	10.23%	5.87	8.08
Camden	29	6.74%	5.70	8.55
Cumberland	6	1.40%	4.10	1.43
Monmouth	25	5.81%	4.06	2.94
Hunterdon-Somerset*	16	3.72%	3.81	3.39
Ocean	19	4.42%	3.72	4.02
Salem	2	0.47%	3.11	9.30
Bergen	25	5.81%	2.83	4.90
Union	12	2.79%	2.30	1.80
Burlington	6	1.40%	1.42	0.24
Atlantic-Cape May*	5	1.16%	1.41	0.59
Morris	6	1.40%	1.28	1.94
Sussex-Warren*	2	0.47%	0.81	3.27
Gloucester	0	0.00%	0.00	1.20
State Total	430	100.00%	5.11	5.35

Rate = Number of isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

Exhibit 16 : Trend of Penicillin-Resistant *Streptococcus pneumoniae* Blood Isolates, 1992-2000 (Original and Seasonally Adjusted Series)



**Exhibit 17 : Number and Rate of Penicillin-Resistant *Streptococcus pneumoniae*
Blood Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Mercer	8	7.27%	2.28	0.00
Essex	17	15.45%	2.14	1.87
Hudson	13	11.82%	2.13	1.45
Middlesex	16	14.55%	2.13	1.53
Hunterdon-Somerset*	7	6.36%	1.67	1.70
Union	8	7.27%	1.53	1.40
Bergen	13	11.82%	1.47	2.10
Camden	7	6.36%	1.38	2.19
Ocean	5	4.55%	0.98	0.40
Monmouth	6	5.45%	0.98	0.16
Burlington	3	2.73%	0.71	0.24
Morris	3	2.73%	0.64	1.08
Passaic	3	2.73%	0.61	0.41
Atlantic-Cape May*	1	0.91%	0.28	0.30
Cumberland	0	0.00%	0.00	0.00
Gloucester	0	0.00%	0.00	1.20
Salem	0	0.00%	0.00	4.65
Sussex-Warren*	0	0.00%	0.00	1.63
State Total	110	100.00%	1.31	1.20

Rate = Number of isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

Exhibit 18 : Drug Resistant Profile of Penicillin-Resistant Streptococci Blood Isolates, 1994-2000

[illegible]

Exhibit 18 : Drug Resistant Profile of Penicillin-Resistant Streptococci Blood Isolates, 1994-2000 (cont)

Antibiotic	Year Organism	1994		1995		1996		1997		1998		1999		2000	
		%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n
Clarithromycin	<i>Strep. pneumoniae</i>	-	-	-	-	-	-	-	-	-	-	20.00%	5	55.56%	9
	Viridans Streptococci	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ciprofloxacin	<i>Strep. pneumoniae</i>	0.00%	11	0.00%	5	0.00%	8	16.67%	6	0.00%	4	0.00%	4	0.00%	4
	Viridans Streptococci	0.00%	4	0.00%	1	25.00%	8	50.00%	2	20.00%	5	-	-	-	-
Levofloxacin	<i>Strep. pneumoniae</i>	-	-	-	-	-	-	-	-	-	-	8.33%	24	0.00%	16
	Viridans Streptococci	-	-	-	-	-	-	-	-	-	-	0.00%	1	33.33%	3
Chloramphenicol	<i>Strep. pneumoniae</i>	0.00%	25	21.62%	37	19.44%	36	22.58%	31	10.00%	40	16.33%	49	18.37%	49
	Viridans Streptococci	-	-	0.00%	1	0.00%	3	0.00%	13	25.00%	8	0.00%	10	0.00%	6
Rifampin	<i>Strep. pneumoniae</i>	-	-	-	-	-	-	-	-	-	-	0.00%	7	8.33%	12
	Viridans Streptococci	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clindamycin	<i>Strep. pneumoniae</i>	0.00%	9	0.00%	8	14.29%	7	28.57%	7	25.00%	16	7.14%	28	11.90%	42
	Viridans Streptococci	33.33%	3	0.00%	1	20.00%	5	10.00%	10	33.33%	9	10.00%	10	0.00%	9
Tetracycline	<i>Strep. pneumoniae</i>	0.00%	24	24.00%	25	22.73%	22	39.29%	28	28.57%	35	35.90%	39	29.73%	37
	Viridans Streptococci	0.00%	5	0.00%	4	16.67%	6	23.53%	17	42.86%	14	33.33%	9	0.00%	10
Trimethoprim /Sulfamethoxazole	<i>Strep. pneumoniae</i>	66.67%	3	54.55%	11	76.47%	17	75.00%	12	64.52%	31	81.58%	38	75.00%	44
	Viridans Streptococci	50.00%	2	0.00%	1	33.33%	6	0.00%	2	40.00%	5	-	-	-	-
Vancomycin	<i>Strep. pneumoniae</i>	0.00%	44	0.00%	70	1.59%	63	0.00%	67	0.00%	66	0.00%	89	0.00%	92
	Viridans Streptococci	0.00%	4	0.00%	2	25.00%	8	0.00%	14	0.00%	13	0.00%	10	0.00%	14

n = Number of isolates tested for the specific antibiotic.

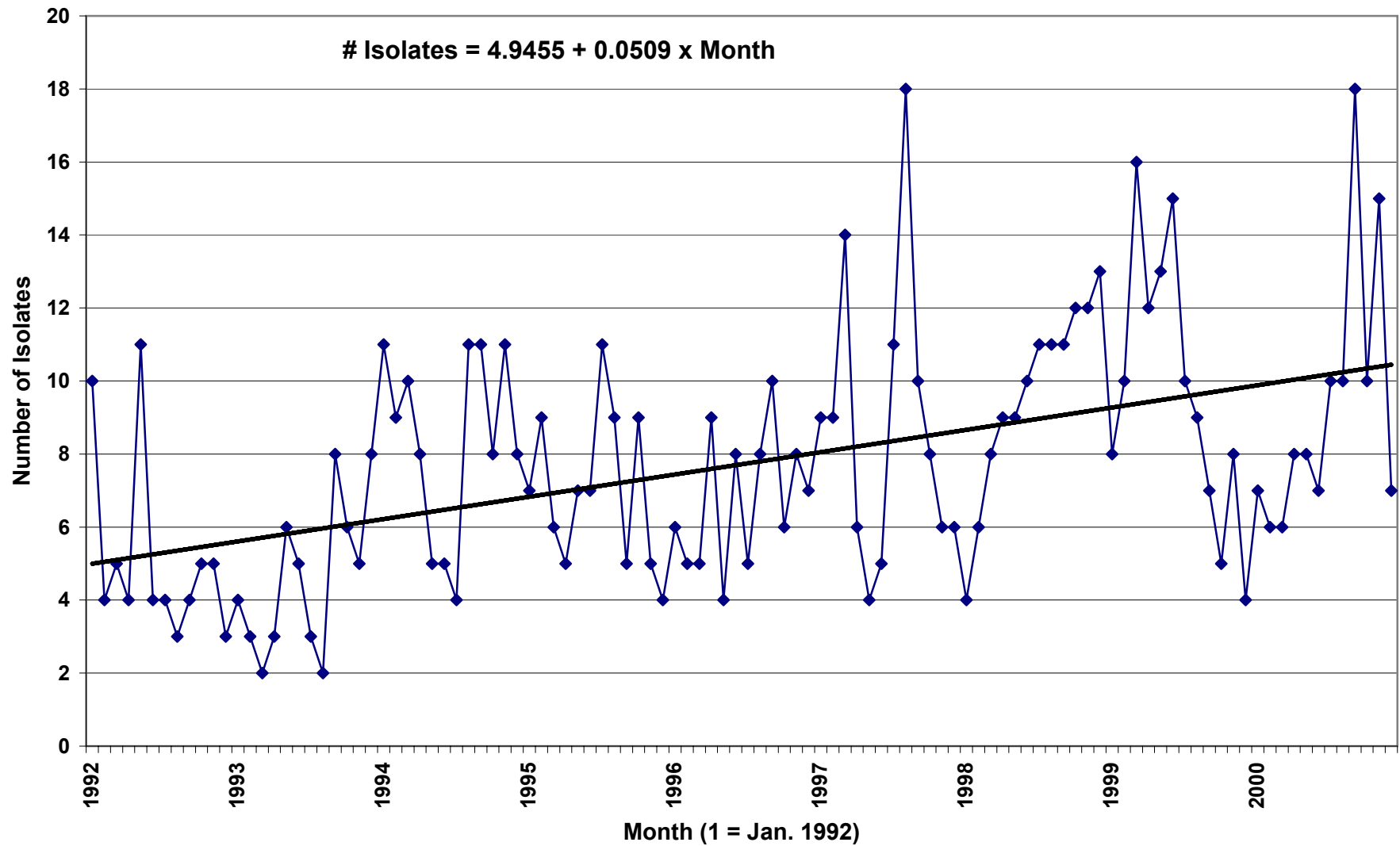
Exhibit 19 : Amikacin-Resistant Gram-Negative Bacilli Blood Isolates, 1994-2000

Organism Name	1994 Frequency		1995 Frequency		1996 Frequency		1997 Frequency		1998 Frequency		1999 Frequency		2000 Frequency	
<i>Stenotrophomonas maltophilia</i>	29	28.71%	21	25.00%	30	37.04%	38	35.85%	35	30.17%	24	20.51%	20	17.86%
<i>Pseudomonas aeruginosa</i>	28	27.72%	17	20.24%	5	6.17%	7	6.60%	13	11.21%	7	5.98%	8	7.14%
<i>Pseudomonas alcaligenes</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.86%	0	0.00%	0	0.00%
<i>Pseudomonas paucimobilis</i>	0	0.00%	0	0.00%	1	1.23%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Pseudomonas fluorescens</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.86%	1	0.85%	0	0.00%
<i>Pseudomonas</i> spp.	0	0.00%	1	1.19%	0	0.00%	3	2.83%	2	1.72%	0	0.00%	0	0.00%
<i>Bordetella bronchiseptica</i>	0	0.00%	0	0.00%	0	0.00%	1	0.94%	0	0.00%	0	0.00%	1	0.89%
<i>Burkholderia cepacia</i>	8	7.92%	7	8.33%	7	8.64%	5	4.72%	3	2.59%	4	3.42%	4	3.57%
<i>Burkholderia pickettii</i>	1	0.99%	1	1.19%	2	2.47%	1	0.94%	0	0.00%	0	0.00%	0	0.00%
<i>Burkholderia pseudomallei</i>	0	0.00%	0	0.00%	0	0.00%	1	0.94%	0	0.00%	0	0.00%	0	0.00%
<i>Alcaligenes xylosoxidans</i>	7	6.93%	5	5.95%	4	4.94%	6	5.66%	3	2.59%	2	1.71%	4	3.57%
<i>Flavobacterium meningosepticum</i>	3	2.97%	1	1.19%	3	3.70%	4	3.77%	3	2.59%	0	0.00%	0	0.00%
<i>Flavobacterium</i> spp.	3	2.97%	4	4.76%	1	1.23%	3	2.83%	1	0.86%	0	0.00%	1	0.89%
<i>Acinetobacter baumannii</i>	0	0.00%	3	3.57%	2	2.47%	10	9.43%	12	10.34%	18	15.38%	18	16.07%
<i>Acinetobacter calcoaceticus / anitratus</i>	2	1.98%	2	2.38%	2	2.47%	0	0.00%	1	0.86%	1	0.85%	4	3.57%
<i>Acinetobacter lwoffii</i>	1	0.99%	1	1.19%	0	0.00%	1	0.94%	1	0.86%	0	0.00%	0	0.00%
<i>Acinetobacter</i> spp.	1	0.99%	0	0.00%	1	1.23%	1	0.94%	0	0.00%	0	0.00%	0	0.00%
<i>Aeromonas hydrophilia</i>	0	0.00%	1	1.19%	0	0.00%	1	0.94%	0	0.00%	0	0.00%	0	0.00%
<i>Achromobacter xylosoxidans</i>	2	1.98%	0	0.00%	1	1.23%	0	0.00%	4	3.45%	1	0.85%	6	5.36%
<i>Xanthomonas</i> spp.	0	0.00%	1	1.19%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Comamonas acidovorax</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.86%	0	0.00%	1	0.89%
<i>Agrobacterium radiobacter</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.86%	0	0.00%	0	0.00%
<i>Empedobacter brevis</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.86%	0	0.00%	0	0.00%
<i>Myroides odoratum</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.85%	1	0.89%

Exhibit 19 : Amikacin-Resistant Gram-Negative Bacilli Blood Isolates, 1994-2000 (cont)

Organism Name	1994 Frequency		1995 Frequency		1996 Frequency		1997 Frequency		1998 Frequency		1999 Frequency		2000 Frequency	
<i>Enterobacteriaceae</i>	16	15.84%	19	22.62%	22	27.16%	24	22.64%	33	28.45%	58	49.57%	44	39.29%
<i>Klebsiella pneumoniae</i>	8	7.92%	11	13.10%	10	12.35%	17	16.04%	28	24.14%	46	39.32%	30	26.79%
<i>Klebsiella oxytoca</i>	0	0.00%	0	0.00%	1	1.23%	1	0.94%	0	0.00%	0	0.00%	0	0.00%
<i>Morganella morganii</i>	2	1.98%	1	1.19%	0	0.00%	0	0.00%	0	0.00%	1	0.85%	1	0.89%
<i>Serratia marcescens</i>	0	0.00%	1	1.19%	2	2.47%	0	0.00%	0	0.00%	2	1.71%	0	0.00%
<i>Proteus mirabilis</i>	4	3.96%	1	1.19%	1	1.23%	1	0.94%	1	0.86%	0	0.00%	0	0.00%
<i>Proteus vulgaris</i>	0	0.00%	1	1.19%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Enterobacter aerogenes</i>	0	0.00%	1	1.19%	0	0.00%	0	0.00%	1	0.86%	1	0.85%	2	1.79%
<i>Enterobacter cloacae</i>	0	0.00%	0	0.00%	4	4.94%	2	1.89%	0	0.00%	3	2.56%	3	2.68%
<i>Enterobacter amnigenus</i>	1	0.99%	1	1.19%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Escherichia coli</i>	0	0.00%	0	0.00%	1	1.23%	3	2.83%	3	2.59%	3	2.56%	4	3.57%
<i>Providencia stuartii</i>	1	0.99%	1	1.19%	3	3.70%	0	0.00%	0	0.00%	1	0.85%	0	0.00%
<i>Citrobacter freundii</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.85%	4	3.57%
<i>Hafnia alvei</i>	0	0.00%	1	1.19%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
State Total	101	100.00%	84	100.00%	81	100.00%	106	100.00%	116	100.00%	117	100.00%	112	100.00%

Exhibit 20 : Trend of Amikacin-Resistant Gram-Negative Bacilli Blood Isolates, 1992-2000



**Exhibit 21 : Number and Rate of Amikacin-Resistant Gram-Negative Bacilli
Blood Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Essex	44	39.29%	5.54	4.95
Middlesex	25	22.32%	3.33	2.79
Cumberland	3	2.68%	2.05	0.00
Hudson	10	8.93%	1.64	0.36
Salem	1	0.89%	1.56	0.00
Union	8	7.14%	1.53	0.80
Ocean	6	5.36%	1.17	2.61
Mercer	3	2.68%	0.86	4.19
Passaic	3	2.68%	0.61	1.03
Camden	3	2.68%	0.59	0.80
Gloucester	1	0.89%	0.39	0.40
Bergen	3	2.68%	0.34	0.47
Burlington	1	0.89%	0.24	0.00
Monmouth	1	0.89%	0.16	0.16
Atlantic - Cape May*	0	0.00%	0.00	0.00
Hunterdon - Somerset*	0	0.00%	0.00	0.00
Morris	0	0.00%	0.00	2.37
Sussex - Warren*	0	0.00%	0.00	0.41
State Total	112	100.00%	1.33	1.44

Rate = Number of isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

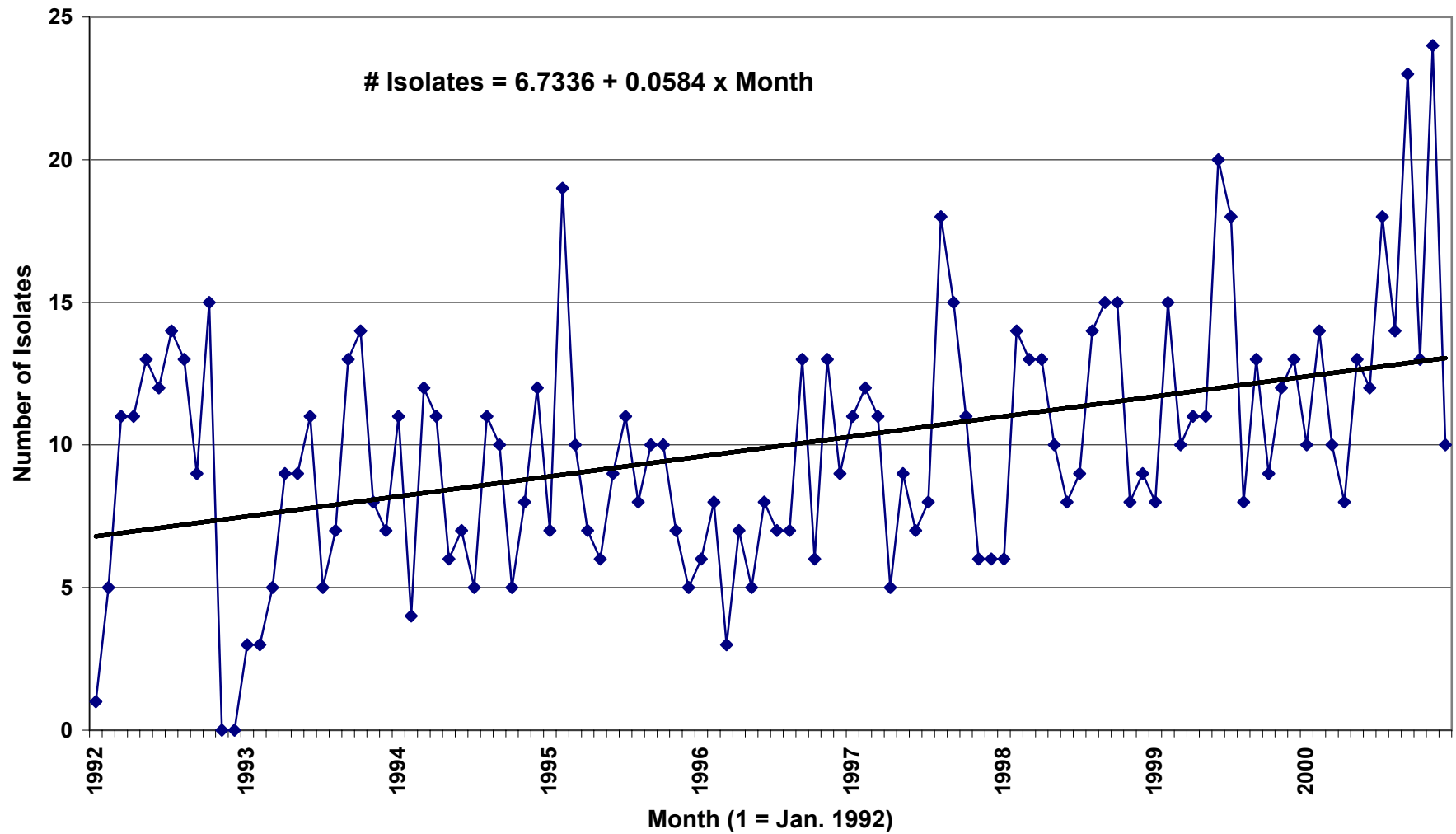
Exhibit 22 : Imipenem-Resistant Gram-Negative Bacilli Isolated from Blood Cultures, 1994-2000

[illegible]

Exhibit 22 : Imipenem-Resistant Gram-Negative Bacilli Isolated from Blood Cultures, 1994-2000 (Cont.)

Organism Name	1994		1995		1996		1997		1998		1999		2000	
	Frequency		Frequency		Frequency		Frequency		Frequency		Frequency		Frequency	
<i>Enterobacteriaceae</i>	27	26.47%	30	27.52%	17	18.48%	16	13.45%	14	10.45%	23	15.54%	14	8.28%
<i>Proteus mirabilis</i>	19	18.63%	15	13.76%	6	6.52%	4	3.36%	3	2.24%	3	2.03%	0	0.00%
<i>Proteus vulgaris</i>	0	0.00%	2	1.83%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Serratia marcescens</i>	0	0.00%	4	3.67%	1	1.09%	3	2.52%	1	0.75%	1	0.68%	1	0.59%
<i>Morganella morganii</i>	3	2.94%	2	1.83%	1	1.09%	1	0.84%	1	0.75%	3	2.03%	1	0.59%
<i>Enterobacter cloacae</i>	0	0.00%	2	1.83%	1	1.09%	1	0.84%	0	0.00%	6	4.05%	1	0.59%
<i>Enterobacter aerogenes</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.68%	1	0.59%
<i>Enterobacter agglomerans</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.68%	0	0.00%
<i>Klebsiella pneumoniae</i>	2	1.96%	3	2.75%	1	1.09%	2	1.68%	4	2.99%	1	0.68%	2	1.18%
<i>Klebsiella oxytoca</i>	0	0.00%	0	0.00%	0	0.00%	1	0.84%	0	0.00%	0	0.00%	0	0.00%
<i>Escherichia coli</i>	0	0.00%	0	0.00%	5	5.43%	3	2.52%	3	2.24%	4	2.70%	7	4.14%
<i>Salmonella</i> spp.	1	0.98%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Providencia stuartii</i>	2	1.96%	1	0.92%	2	2.17%	1	0.84%	1	0.75%	2	1.35%	0	0.00%
<i>Providencia rettgeri</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.75%	0	0.00%	0	0.00%
<i>Hafnia alvei</i>	0	0.00%	1	0.92%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
<i>Citrobacter freundii</i>	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.68%	0	0.00%
<i>Kluyvera</i> spp.	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.59%
Total	102	100.0%	109	100.0%	92	100.0%	119	100.0%	134	100.0%	148	100.0%	169	100.0%

**Exhibit 23 : Trend of Imipenem-Resistant Gram-Negative Bacilli Blood Isolates,
1992-2000**



**Exhibit 24 : Number and Rate of Imipenem-Resistant Gram-Negative Bacilli
Blood Isolates by County, 2000
In Descending Order of Number of Isolates per 100,000 Population**

County	Num. Isolates	Percentage	Isolates / 100,000 Population	
			2000	1999
Essex	52	30.77%	6.55	5.49
Middlesex	29	17.16%	3.87	3.48
Hudson	23	13.61%	3.78	5.43
Passaic	15	8.88%	3.07	1.86
Ocean	11	6.51%	2.15	0.60
Salem	1	0.59%	1.56	0.00
Mercer	5	2.96%	1.43	0.30
Morris	5	2.96%	1.06	1.29
Bergen	9	5.33%	1.02	1.05
Camden	5	2.96%	0.98	0.99
Union	5	2.96%	0.96	0.80
Hunterdon - Somerset*	3	1.78%	0.72	0.48
Cumberland	1	0.59%	0.68	1.43
Monmouth	4	2.37%	0.65	0.98
Atlantic - Cape May*	1	0.59%	0.28	0.00
Burlington	0	0.00%	0.00	0.00
Gloucester	0	0.00%	0.00	0.40
Sussex - Warren*	0	0.00%	0.00	1.63
State Total	169	100.00%	2.01	1.82

Rate = Number of isolates per 100,000 resident population in each county.

* Data for these two neighboring counties were aggregated according to guidelines of confidentiality disclosure.

Exhibit 25 : Multiple Drug Resistance of Major *Enterobacteriaceae* Blood Isolates, 1994-2000

Antibiotic	Year Organism	1994		1995		1996		1997		1998		1999		2000	
		%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n
Imipenem	<i>K. pneumoniae</i>	20.00%	10	11.54%	26	5.88%	17	5.56%	36	9.30%	43	1.75%	57	5.00%	40
	<i>E. cloacae</i>	-	-	100.00%	2	16.67%	6	16.67%	6	0.00%	6	46.15%	13	12.50%	8
	<i>E. coli</i>	0.00%	2	0.00%	4	71.43%	7	25.00%	12	25.00%	12	25.00%	16	35.00%	20
Aztreonam	<i>K. pneumoniae</i>	71.43%	7	84.62%	13	71.43%	7	75.00%	16	78.57%	14	88.89%	18	85.00%	20
	<i>E. cloacae</i>	-	-	100.00%	1	100.00%	4	100.00%	3	-	-	75.00%	4	100.00%	3
	<i>E. coli</i>	-	-	-	-	0.00%	3	33.33%	6	33.33%	3	80.00%	5	30.77%	13
Cefazolin	<i>K. pneumoniae</i>	86.67%	15	89.29%	28	76.47%	17	80.56%	36	80.00%	45	79.66%	59	84.21%	38
	<i>E. cloacae</i>	-	-	100.00%	2	83.33%	6	100.00%	5	100.00%	6	100.00%	11	66.67%	6
	<i>E. coli</i>	33.33%	3	20.00%	5	14.29%	7	20.00%	15	61.54%	13	56.25%	16	45.45%	22
Ceftazidime	<i>K. pneumoniae</i>	60.00%	10	55.00%	20	69.23%	13	64.00%	25	74.29%	35	69.81%	53	88.89%	36
	<i>E. cloacae</i>	-	-	100.00%	2	100.00%	4	100.00%	4	66.67%	3	55.56%	9	66.67%	3
	<i>E. coli</i>	0.00%	1	0.00%	1	20.00%	5	25.00%	12	66.67%	9	71.43%	14	44.44%	18
Ceftriaxone	<i>K. pneumoniae</i>	28.57%	7	37.50%	8	28.57%	7	36.84%	19	34.62%	26	36.59%	41	48.48%	33
	<i>E. cloacae</i>	-	-	100.00%	2	100.00%	4	33.33%	3	0.00%	1	45.45%	11	25.00%	4
	<i>E. coli</i>	0.00%	1	-	-	0.00%	2	25.00%	4	0.00%	5	0.00%	4	26.67%	15
Ampicillin	<i>K. pneumoniae</i>	100.00%	16	100.00%	30	100.00%	19	94.74%	38	100.00%	43	100.00%	61	100.00%	40
	<i>E. cloacae</i>	-	-	100.00%	2	100.00%	6	100.00%	6	100.00%	6	100.00%	12	100.00%	6
	<i>E. coli</i>	66.67%	3	100.00%	3	37.50%	8	64.29%	14	76.92%	13	94.12%	17	79.17%	24
Ampicillin-sulbactam	<i>K. pneumoniae</i>	100.00%	1	0.00%	1	100.00%	1	100.00%	3	85.71%	7	66.67%	24	66.67%	15
	<i>E. cloacae</i>	-	-	-	-	-	-	-	-	-	-	100.00%	4	-	-
	<i>E. coli</i>	-	-	-	-	-	-	0.00%	3	100.00%	1	77.78%	9	87.50%	8

Exhibit 25 : Multiple Drug Resistance of Major *Enterobacteriaceae* Blood Isolates, 1994-2000 (cont)

Antibiotic	Year Organism	1994		1995		1996		1997		1998		1999		2000	
		%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n
Piperacillin	<i>K. pneumoniae</i>	87.50%	8	92.86%	14	88.89%	9	86.96%	23	82.14%	28	76.09%	46	90.91%	33
	<i>E. cloacae</i>	-	-	100.00%	1	100.00%	6	75.00%	4	66.67%	3	63.64%	11	60.00%	5
	<i>E. coli</i>	50.00%	2	33.33%	3	50.00%	2	28.57%	7	83.33%	6	85.71%	7	63.64%	11
Ciprofloxacin	<i>K. pneumoniae</i>	21.43%	14	41.38%	29	50.00%	16	45.71%	35	40.91%	44	50.00%	58	70.27%	37
	<i>E. cloacae</i>	-	-	0.00%	2	66.67%	6	0.00%	5	60.00%	5	63.64%	11	75.00%	4
	<i>E. coli</i>	50.00%	2	0.00%	5	12.50%	8	40.00%	15	83.33%	12	64.71%	17	62.50%	16
Tobramycin	<i>K. pneumoniae</i>	83.33%	12	89.29%	28	94.12%	17	91.43%	35	95.45%	44	98.28%	58	97.78%	45
	<i>E. cloacae</i>	-	-	50.00%	2	83.33%	6	66.67%	6	40.00%	5	78.57%	14	100.00%	7
	<i>E. coli</i>	66.67%	3	60.00%	5	25.00%	4	41.67%	12	53.85%	13	75.00%	16	63.16%	19
Gentamicin	<i>K. pneumoniae</i>	87.50%	16	93.55%	31	89.47%	19	83.78%	37	90.91%	44	98.33%	60	97.92%	48
	<i>E. cloacae</i>	-	-	50.00%	2	100.00%	6	66.67%	6	100.00%	6	85.71%	14	100.00%	4
	<i>E. coli</i>	100.00%	3	100.00%	5	37.50%	8	66.67%	15	73.33%	15	68.75%	16	73.91%	23
Amikacin	<i>K. pneumoniae</i>	72.73%	11	45.83%	24	55.56%	18	60.71%	28	68.29%	41	80.70%	57	68.18%	44
	<i>E. cloacae</i>	-	-	0.00%	2	-	-	40.00%	5	0.00%	4	23.08%	13	0.00%	3
	<i>E. coli</i>	-	-	0.00%	3	25.00%	4	27.27%	11	27.27%	11	23.08%	13	23.53%	17
Trimethoprim/ Sulfamethoxazole	<i>K. pneumoniae</i>	71.43%	14	69.57%	23	57.89%	19	75.76%	33	88.37%	43	85.00%	60	75.61%	41
	<i>E. cloacae</i>	-	-	100.00%	2	50.00%	6	50.00%	4	83.33%	6	64.29%	14	50.00%	4
	<i>E. coli</i>	50.00%	2	25.00%	4	37.50%	8	9.09%	11	69.23%	13	81.25%	16	77.78%	18

n = Number of isolates tested for the specific antibiotic.

Exhibit 26 : Multiple Drug Resistance of Gram-Negative Bacilli Blood Isolates, 1994-2000

Antibiotic	Organism	Year		1994		1995		1996		1997		1998		1999		2000	
		%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n
Imipenem	<i>P. aeruginosa</i>	70.73%	41	77.78%	45	71.88%	32	73.17%	41	90.91%	55	86.67%	60	86.49%	74		
	<i>S. maltophilia</i>	100.00%	31	96.77%	31	100.00%	33	100.00%	42	100.00%	33	100.00%	26	100.00%	38		
	<i>A. calcoaceticus/baumannii</i>	33.33%	3	8.33%	12	25.00%	12	52.63%	19	44.44%	45	33.33%	48	73.21%	56		
Aztreonam	<i>P. aeruginosa</i>	35.29%	34	41.67%	36	39.29%	28	51.52%	33	57.78%	45	57.78%	45	50.00%	46		
	<i>S. maltophilia</i>	81.82%	22	84.00%	25	89.29%	28	90.91%	33	75.76%	33	77.78%	27	78.26%	23		
	<i>A. calcoaceticus/baumannii</i>	100.00%	3	75.00%	4	100.00%	4	100.00%	12	100.00%	13	100.00%	29	96.15%	26		
Ceftazidime	<i>P. aeruginosa</i>	3.03%	33	27.27%	44	33.33%	27	33.33%	39	41.67%	48	38.18%	55	23.81%	63		
	<i>S. maltophilia</i>	26.67%	30	18.52%	27	40.00%	30	53.66%	41	35.71%	42	31.25%	32	20.00%	30		
	<i>A. calcoaceticus/baumannii</i>	66.67%	3	50.00%	4	75.00%	4	75.00%	16	84.62%	26	85.37%	41	89.80%	49		
Cefotaxime	<i>P. aeruginosa</i>	57.14%	14	68.75%	16	100.00%	8	80.00%	20	78.13%	32	76.32%	38	83.87%	31		
	<i>S. maltophilia</i>	75.00%	12	66.67%	18	71.43%	14	78.95%	19	64.71%	17	60.00%	10	78.57%	14		
	<i>A. calcoaceticus/baumannii</i>	100.00%	3	66.67%	9	85.71%	7	82.35%	17	81.82%	33	71.70%	53	90.00%	40		
Ceftriaxone	<i>P. aeruginosa</i>	61.11%	18	59.09%	22	88.89%	9	78.26%	23	72.73%	33	70.97%	31	77.27%	44		
	<i>S. maltophilia</i>	87.50%	16	93.33%	15	88.24%	17	89.29%	28	68.18%	22	85.71%	14	79.17%	24		
	<i>A. calcoaceticus/baumannii</i>	100.00%	3	75.00%	4	66.67%	3	85.71%	14	69.23%	13	82.14%	28	97.37%	38		
Cefepime	<i>P. aeruginosa</i>	-	-	-	-	-	-	0.00%	1	77.78%	9	40.00%	25	40.00%	10		
	<i>S. maltophilia</i>	-	-	-	-	-	-	-	-	50.00%	2	100.00%	5	80.00%	5		
	<i>A. calcoaceticus/baumannii</i>	-	-	-	-	-	-	-	-	-	-	100.00%	7	80.00%	5		
Piperacillin	<i>P. aeruginosa</i>	20.69%	29	34.21%	38	51.72%	29	44.44%	36	61.82%	55	53.57%	56	48.94%	47		
	<i>S. maltophilia</i>	60.00%	20	64.29%	28	66.67%	24	54.55%	44	27.27%	33	56.67%	30	58.33%	24		
	<i>A. calcoaceticus/baumannii</i>	100.00%	3	30.00%	10	75.00%	8	88.89%	18	78.57%	28	81.63%	49	100.00%	36		

Exhibit 26 : Multiple Drug Resistance in Gram-Negative Bacilli Blood Isolates, 1994-2000 (cont)

Antibiotic	Organism	Year		1994		1995		1996		1997		1998		1999		2000	
		%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n	%R	n
Ticarcillin-clavulanic acid	<i>P. aeruginosa</i>	85.71%	7	71.43%	7	100.00%	1	83.33%	6	95.65%	23	76.19%	21	50.00%	6		
	<i>S. maltophilia</i>	40.00%	5	25.00%	4	0.00%	8	20.00%	10	0.00%	9	14.29%	7	0.00%	2		
	<i>A. calcoaceticus/baumannii</i>	-	-	0.00%	1	0.00%	1	87.50%	8	80.00%	10	55.56%	18	33.33%	3		
Ciprofloxacin	<i>P. aeruginosa</i>	59.46%	37	54.35%	46	63.64%	33	75.00%	40	71.93%	57	71.93%	57	73.33%	60		
	<i>S. maltophilia</i>	34.48%	29	30.30%	33	42.42%	33	33.33%	48	15.79%	38	9.09%	33	10.00%	30		
	<i>A. calcoaceticus/baumannii</i>	100.00%	3	72.73%	11	75.00%	12	88.24%	17	95.24%	42	96.67%	60	95.45%	44		
Levofloxacin	<i>P. aeruginosa</i>	-	-	-	-	-	-	81.82%	11	90.48%	21	53.57%	28	81.82%	22		
	<i>S. maltophilia</i>	-	-	-	-	0.00%	1	33.33%	3	0.00%	4	0.00%	4	0.00%	7		
	<i>A. calcoaceticus/baumannii</i>	-	-	-	-	-	-	100.00%	1	87.50%	8	87.50%	16	95.24%	21		
Tobramycin	<i>P. aeruginosa</i>	68.42%	38	59.52%	42	55.88%	34	58.97%	39	76.60%	47	58.93%	56	69.12%	68		
	<i>S. maltophilia</i>	75.76%	33	86.21%	29	82.14%	28	88.89%	45	86.11%	36	78.13%	32	65.63%	32		
	<i>A. calcoaceticus/baumannii</i>	0.00%	3	33.33%	12	23.08%	13	63.16%	19	40.91%	44	45.16%	62	76.47%	51		
Gentamicin	<i>P. aeruginosa</i>	76.92%	39	57.14%	49	62.86%	35	83.72%	43	74.51%	51	59.32%	59	69.74%	76		
	<i>S. maltophilia</i>	83.33%	36	62.50%	32	84.85%	33	93.33%	45	92.50%	40	64.71%	34	65.79%	38		
	<i>A. calcoaceticus/baumannii</i>	100.00%	3	91.67%	12	100.00%	13	86.67%	15	97.73%	44	92.19%	64	98.39%	62		
Amikacin	<i>P. aeruginosa</i>	71.79%	39	38.64%	44	16.67%	30	17.07%	41	27.08%	48	12.28%	57	12.50%	64		
	<i>S. maltophilia</i>	80.56%	36	65.63%	32	90.91%	33	86.36%	44	81.40%	43	66.67%	36	66.67%	30		
	<i>A. calcoaceticus/baumannii</i>	66.67%	3	100.00%	5	50.00%	8	66.67%	15	40.63%	32	45.24%	42	40.00%	55		
Trimethoprim/Sulfamethoxazole	<i>P. aeruginosa</i>	81.82%	22	86.36%	22	90.00%	10	96.15%	26	97.67%	43	100.00%	30	96.67%	30		
	<i>S. maltophilia</i>	7.41%	27	3.45%	29	9.68%	31	16.28%	43	5.71%	35	4.55%	22	9.68%	31		
	<i>A. calcoaceticus/baumannii</i>	66.67%	3	33.33%	12	90.91%	11	80.00%	20	80.95%	42	81.25%	64	93.33%	45		

n = Number of isolates tested for the specific antibiotic.